

BUTANE-PROPANE *News*



No. 35

APRIL 1942

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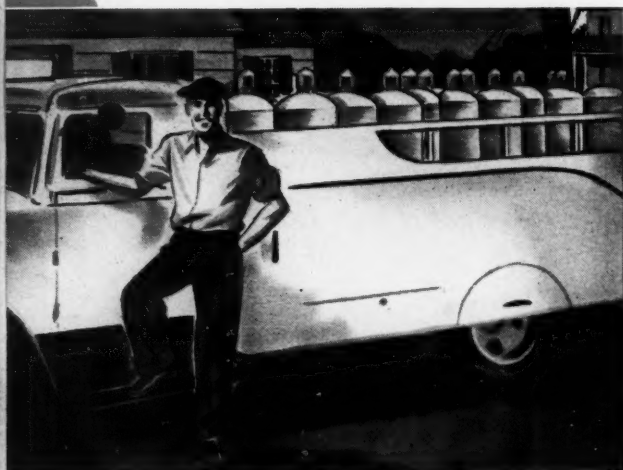
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HACKNEY ADVANTAGES HELP YOU

Deliver a Higher Standard of Living



HACKNEY BUTANE-PROPANE
CYLINDERS

You have helped many a farm and urban home enjoy the comfort and convenience of modern appliances, utilizing L-P Gas. Hackney Cylinders have aided you in extending these improvements to an ever-widening market.

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easier, faster and safer to handle. From the beginning of the L-P Gas Industry, the initial cost of Hackney Cylinders has been continually reduced. As a result, they have helped many farm and urban families enjoy those modern conveniences which a few years ago they were unable to afford.

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208 S. La Salle St., Room 1519, Chicago
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Containers for Gases, Liquids and Solids

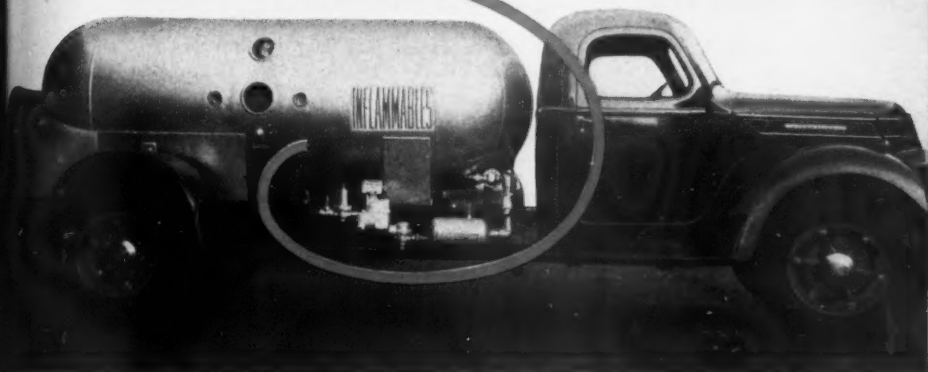
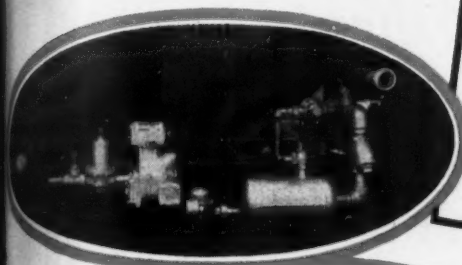


Because of the urgent need of materials for the emergency, deliveries may be interrupted. Pressed Steel Tank Company, in addition to doing its share during the emergency, is doing its utmost to continue to serve its customers.

GUARD

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BUTANE-PROPANE
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EMCO Large Capacity
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ROTOCYCLE Meter for
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BUTANE-PROPANE

News



Reg. U. S. Pat. Off.

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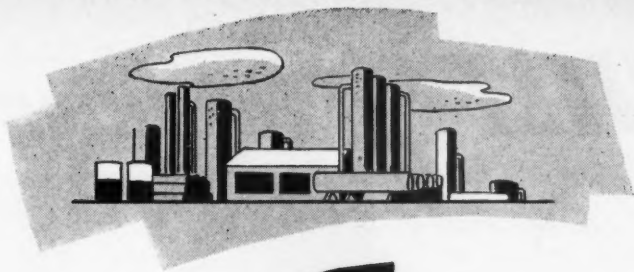
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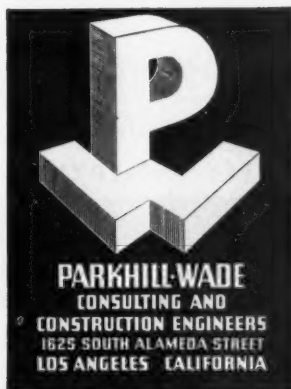
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**CONSULTING & CONSTRUCTION
ENGINEERS
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LP-GAS INDUSTRY
FOR THE
ENGINEERING, DESIGN & CONSTRUCTION
OF PLANTS
FOR THE FRACTIONATION OF ALL
LIGHT HYDROCARBONS**



GUILTY of Negligence!



***"Be not the first to adopt the new,
or the last to lay the old aside."***

These words of wisdom are from opinion of a famous jurist in an important action in damages. It means this to you: If you furnish your workmen with antiquated equipment—and anything happens, the onus is on you. Supply them with Ransome Butane Torches and Burners and you've given them the best in modern, proven equipment. Catalogs sent on request.

RANSOME COMPANY

Designing and Constructing Engineers

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Ransome

LETTERS

Gentlemen:

Our home defense committee is very much interested in setting up a system of air raid warnings. We would like to have you advise us where we can buy regulators, valves and horns, and give us any other information available so that we can apply our propane tanks to this use.

R. P. B.

Massachusetts

Gentlemen:

Please give us the names of manufacturers of horns, regulating valves and whistle valves used in the Long Beach, Calif., propane warning system described in your March issue.

E. R. B.

Texas

Gentlemen:

Throughout our section communities are experiencing difficulties with air raid signals and it is possible that the warning horn system used in Long Beach and described in your magazine may be the answer to their problems. I would appreciate any information you can give me as this might prove to be another outlet for our propane gas.

P. D. D.

Massachusetts

Gentlemen:

I have read with considerable interest your articles in BUTANE-PROPANE *News* with regard to the use of propane for air raid warning horns.

I am wondering if it would be possible

for you to furnish a schematic drawing showing the hook-up and also a list of the necessary parts and equipment used in making up one of these outfits.

I have mentioned these articles on the system, to the regional director in this area in charge of air raid warning equipment, etc., and was advised that he would be interested in such a device as he has had several requests from rural communities for information relative to a suitable air raid warning signal.

However the one question asked was, "What is the approximate coverage with this outfit on a still night?"

Also would appreciate advice as to where the various parts necessary for the assembly of this unit may be procured.

H. W. W.

Massachusetts

Because of the general interest shown in the subject since it was mentioned in the February and March issues of BUTANE-PROPANE *News*, additional information and a schematic drawing of a propane air raid warning horn system are given in detail on Page 26 of this issue, and it is hoped that this new article will fully answer the needs of those above who make inquiry.—Ed.

Gentlemen:

Please wire collect essential information on reported new Government orders prohibiting sale of butane equipment. Need information for noon meeting today.

Valley Electrical Supply Company
Fresno, California

LP-Gas industry now controlled by order M-68-e which prohibits new installations and freezes all inventories except gas and gas con-

suming appliances except as special permission granted for jobs to promote the war effort. Order does not prevent servicing present customers, making necessary repairs or continuing with construction work started before January 14 if such work will be completed within 60 days thereafter. New order pending soon but greatly increased latitude not expected. Read pages 11, 12, 13 BUTANE-PROPANE News, March issue.—Ed.

Gentlemen:

We are desirous of information as to what we could use to kill the butane gas fumes in our truck tank so that we could use the acetylene torch to cut out the small pipe opening which leads to the pump and weld on larger pipe connections in the bottom of tanks.

P.T.P.

Washington

The general method of purging tanks containing inflammable gases involves the use of inert gases such as carbon dioxide, nitrogen or steam for the purpose of diluting and removing the vapor remaining in the tank.

Inert gas producers which burn gas and produce flue products as the purging agent are available and it is possible that you may borrow or rent such an apparatus from a nearby large gas utility.

A method using the combustion products from the truck engine could very well be employed. Combustion products from a well adjusted engine are composed, practically, of nitrogen, carbon dioxide and steam, along with small amounts of carbon monoxide and oxygen. Even if the liquid pump is operated until no more liquid flows, there would still be some liquid remaining in the tank. An industrial burner could be connected to the vapor outlet of the tank installed so that the heat from the burner flame would not impinge any part of the tank and having a length of piping between burner head and the tank itself in order to prevent overheating of the shell. An industrial burner having a flame retention type of head would be very desirable for this purpose. The flame would be allowed to burn until the tank pressure was practically atmospheric, after which a vapor connection at the top of the tank would be opened and the exhaust pipe connected to another opening near the bottom of the tank. Purging should proceed until flue products equal to 20 times the volume of the tank have been passed through the tank. It is important to make certain that no stratification of inflammable gas has taken place in the tank. The connections would then be reversed

and another purging operation carried out. If several openings are available, purging could take place through each pair in succession, being careful each time not to allow air into the tank while changing connections. It would be advisable to use the largest tank openings available in order not to put an excessive back pressure on the engine. A fire screen in the exhaust would not be necessary if care is taken not to allow any air to enter the tank during the purging operation. Commercial purging machines often contain a fire screen as an added safety feature.

Another method which would not involve much expense is the water displacement method. The tank pressure could be brought down to as near atmospheric pressure as possible, using the industrial burner method, after which the water would be pumped into the tank. It might be possible to set up a piping arrangement using the butane liquid pump for this purpose. It would be very important to remove the last drops of water after the welding operation is completed and this could be done with a gas-fired air heater.—Ed.

Gentlemen:

"Enclosed find our check for \$2.50. We are proud to be a Charter Subscriber to BUTANE-PROPANE News. It has been a real help to us in so many ways. We wish you success as it is a part of ours."

G. H. HELMER

Proprietor
Badger Gas Products
Platteville, Wisconsin

Gentlemen:

We herewith acknowledge receipt of Mr. Jay Jenkin's letter relative to continued subscription to the News.

BUTANE-PROPANE News has been well edited; it has rendered a valuable service to the liquefied petroleum gas industry and it has been very satisfactory to us. We shall be pleased to continue our subscription.

W. P. THOMAS

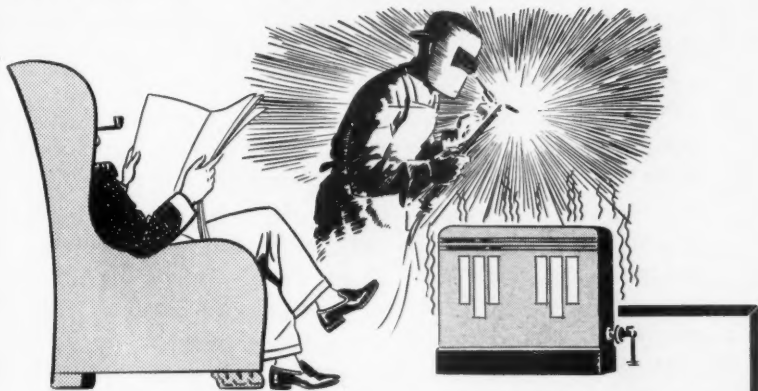
Louisiana Public Service Commission
Baton Rouge, Louisiana

• BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.

SINCLAIR

BUTANES and PROPANE

"Keep the Home Fires Burning"



In line with our country's demand for greater production of Butanes, we have this month completed a new Sinclair LP-Gas Plant at Covington, Oklahoma. This supplies a new source for Western Oklahoma and Kansas—releasing more of our Central Oklahoma and Texas production for expanded requirements in the Great Lakes and Gulf Coast areas.

"DOMESTIC" ISN'T THE WORD FOR IT

Our Domestic Distributors advise that the demand for Sinclair Butane and Propane has greatly increased over ordinary seasonal requirements due to new business from Military, Naval, Ordnance, Industrial, and Hydro-Electric projects in their localities, as well as for housing workers on these projects. "Domestic" sales of Butane and Propane represent a smaller percentage of their total sales each week, and our "Domestic" Distributors are fast becoming "War Production" Distributors.

SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division

Sinclair Building

Tulsa, Oklahoma

APRIL - 1942

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There's a Bright Side, Too

By A. N. KERR

IN spite of the seriousness of existing conditions in the LP-Gas industry, due to war influences, I feel that there is a note of optimism that well may be sounded.

After 33 years of contending with oil and gas difficulties of a wide variety, I have found it good policy to recall the adage: "I am an old man, and have had many troubles—**most of which never happened!**"

From a business standpoint: 1. Our industry has many capable distributors. They will find ways to supplement income; perhaps by charging for services formerly free!

2. Powerful economic forces are helping us. All the load of supplying high-priced aviation gasoline and rubber may, **but probably will not**, fall on the butanes. Hundreds are trying to solve the problem. They may find substitutes. They always have!

From a technical standpoint: 1. We can broaden the pentane "cut" and use vaporizers. As much as one-third pentanes will stay in the gas in "gas form" after vaporization. Our old "normal cuts" in 1911 (before column stills) did this. For every gallon of pentane included, another gallon of propane can be mixed in. The pentane reduces the vapor pressure. Thus the volume of butane sold in some butane tanks can be decreased perhaps 40%.

2. We have almost neglected the normal pentane and hexane mixtures which can be produced as "gas machine" gasoline and shipped in gasoline cars. These, when mixed with air, can absorb the load of large users, including the butane town plants. Due to weight and freight savings they are worth 10 to 20% more. Mid-west natural gasoline is now as cheap as crude oil. Iowa once had 32 town plants using this product which, by-the-way, introduced us to the liquid gas business.

Who knows? Possibly our industry may be considerably broadened by the present situation, and by taking under its wing two additional liquids of the paraffin series.



A. N. KERR
Guest Editor for April

MAINLY BEYOND THE MAINS

Pooled Transportation

Transportation will be the bottleneck that may seriously affect distribution, first to bulk stations and eventually to dealers and even consumers of propane. With increased butane production called for to be used in the manufacture of aviation gasoline, there will be a comparable increase in the amount of propane that will be available. But tank trucks to haul gas are already in serious shortage in some areas, with no indications that there will be any improvement in the situation. It is probable that no steel will be available during the coming year for the construction of this type of equipment. And even if new cars are built it is obvious that they will all go into the service of carrying butane from its many points of extraction to the reforming plants where 100-octane gasoline is being made. An additional demand for propane tank cars is being made to insure supply to those industrial plants that are using the gas as a fuel in the production of essential war materials.

Present test runs, wherein casinghead gasoline cars refitted are being used in the transportation of butane may, if successful, mitigate to some extent the lack of sufficient rolling stock.

The Petroleum Industry Committee has recognized the gravity of this situation, and through a sub-committee under its Transportation Section is now conducting an LP-Gas tank truck survey. Questionnaires are being mailed to dealers, distributors, fleet operators and refiners to ascertain the exact capacity of all of the tank truck equipment that is now in use or available to be put into service throughout the country.

It behooves these factors to cooperate in the compilation undertaken in this survey, and to even look beyond it in the interests of their own survival.

All of this simply adds up to the fact that the amount of gas that the marketing side of the industry can count on is only the amount that can be moved from refineries and natural gasoline plants to the bulk plants of distributors and dealers.

As the shortage of tank cars becomes more acute, the only solution will lie in making use of all available tank trucks to as close to 100% of their capacity as is humanly and mechanically possible. This means that trucks capable of carrying propane must be kept rolling; and if they are not immediately needed to carry gas for their owners, they must be in service making delivery to a competitor if necessary. Longer truck hauls will be required to fill in the gaps left by the assignment of propane cars to butane service.

To insure the maximum use of all available transportation facilities in the industry, it will become advisable and necessary for tank truck owners to consider the formation of definite transportation pools, listing the total bulk station requirements of all companies in a marketing area, and providing for the filling of these requirements from a centrally controlled routing of all the tank trucks in service in that area.

As the shortage of tires becomes more of a problem, the transportation pool principle of delivery might be extended to include delivery of bottles to consumers. In an emergency such as the one in which we are now caught, there is little excuse for sending two or three pick-up trucks over a route that could be adequately cared for by one.

It is conceivable that further

delivery economies can be effected by the outright exchange of customers, whereby each dealer may be able to limit the radius of his operations without curtailing the total number of consumers served. For the present both transportation pools and the exchange of customers may be regarded only as hedges against future emergencies. But the importance of having a technique developed and a plan ready for application cannot be overstated.

Self-Read Meters

Progressive LP-Gas dealers who have been installing metered gas service are now confronted with a new problem created by the stringent tire shortage, and the necessity of conserving every ounce of rubber on their company cars. Meter reading necessitates a monthly call on every user, regardless of his consumption during the metering period—a call that does not have to be made where service is by the bottle or bulk delivery method.

Such calls in the past were regarded by many operators as desirable contacts with their consumers, and were often used for various other purposes such as checking appliances periodically, reminding home-owners of overdue accounts and often even collecting on the spot for the gas consumption as registered

on the meter. But the question now is not whether or not the expense is justified but rather whether or not by some other system the use of automotive equipment can be reduced to save tires.

The system that best recommends itself in this situation is one that has been employed successfully by a few isolated operators, that of self-reading of his own meter by every customer. Printed business reply postcards are sent out, generally in the form of double mailers. One side of the card contains simple instructions for reading the meter, and the other half, to be returned to the company, has a meter index reproduced on its reverse side. The customer inspects his own meter, marking with a pencil the position of each hand on the dials, or noting down the numerals where direct reading indexes are used.

When the card is received at the office it can be checked against the reading for the previous period, and the cumulative total of gas used since the last delivery date noted. The system in operation is a most effective safeguard against "out of gas" calls at inopportune times, and permits the advance scheduling of delivery trucks so that they may operate with maximum efficiency.

There is nothing of the honor system involved, since the customer who might elect to take

a flier in falsifying his reading would be caught without a leg to stand on the first time he ran out of gas, if his total reported consumption during the period did not check with the gas delivered.

Certainly there is no labor required, nor any great degree of intelligence, either, on the part of the user. If he can learn to tell time by his own watch he can learn to read a gas meter. If some of the carriage trade object to taking on this simple chore on the grounds that it is the gas supplier's obligation and not theirs, the simple expedient of letting them run out of gas about once should supply all of the argument needed.

As a matter of fact, however, the change to a self-reading system need be accompanied by no bad will, and could if properly explained in the announcing letter be translated into a patriotic gesture of cooperation in the national rubber conservation program. The consuming public is rapidly learning to accept with good grace the inevitable curtailment of the nice refinements of service that they were once encouraged to believe were theirs by Divine right.

We suggest that the time to put in such a system is now—while those 600x16's still have a few thousand miles of wear left in them. Remember it will take a lot of conserving to make them last through 1945.

Pacific Coast Section Looks To The Future

By PAUL LADY



Paul K. Thompson, of Washington, D. C., representing the War Production Board, and Frank R. Fetherston, secretary LPGA, who spoke at the convention.

ONE hundred and seventy-five members and guests of the Pacific Coast Section, Liquefied Petroleum Gas Association, gathered March 13 at the Hotel St. Francis in San Francisco, for an open discussion of the problems facing our industry today.

The group that was called to order by retiring Chairman Chas. E. McCartney represented every branch of the industry, indicating a keen interest in the topics to be considered.

J. S. Fagan, chairman of the election committee, reported the following new officers for the coming year: W. T. Joplin, chairman; W. B. May, vice chairman, San Francisco-Sacramento-Stockton district; C. M. Ambrose, vice chairman, Pacific-Northwest district; J. S. West, vice chairman, San

Joaquin Valley district; Harry Horn, vice chairman, Southern California-Arizona district. L. C. Roney was originally elected to this position but resigned in favor of Mr. Horn, due to lack of time because of war contracts being filled by his firm.

Taking over his duties as chairman for the first time, Mr. Joplin expressed thanks for his election to the office and stated briefly how much the Association has benefited him during the past years. He asked all non-members to join as soon as possible, and take part in today's important activities.

The first paper on the program was given by Mr. McCartney. Speaking on the subject, "What the Future Looks Like Today," he said in part, "The outlook and future of the LP-Gas industry is tied



W. T. Joplin, new Chairman Pacific Coast Section, LPGA, and John H. Kunkel, re-elected secretary.

LADY

directly to the war. Many have not yet realized this—or the problems of our government. We must rearrange our business in such a way that it will comply with government needs. It is hoped that members of the industry will put aside selfish motives and work for the good of all in order that the industry can exist. We cannot be competitors in the old sense but must work together.”

Harry R. Featherston, national secretary, LPGA, gave a report on the activities of the Association with governmental bodies in Washington. Mr. Featherston's message was the keynote of the program. He said that the LPGA has attempted to represent the industry in Washington and has performed the task of presenting industry problems with considerable success. The government, preferring to limit its contacts with each industry to a few persons, has accepted LPGA as the logical representative for the LP-Gas industry and will continue to deal with our representatives on this basis.

The government today is recognizing this industry as a separate group and is considering our



C. E. McCARTNEY



C. L. PARKHILL

problems as such. Soon it may be expected that a ruling will definitely classify and clarify our standing.

The industry is fortunate that there are men now in Washington who have had former connections with this field. Two, now with the government, and who know our problems, are Woodward Martin, former president of the LPGA, who is with the Office of Petroleum Coordinator, and Paul K. Thompson, formerly with Philgas, now with the War Production Board.

Following Mr. Featherston's talk, Paul Thompson spoke to the gathering. He praised the interest and support that the industry gives the Association and urged that the members of the industry continue to work with it as the fastest method of handling their problems.

The third speaker on the afternoon program, C. L. Parkhill, first vice president of the national Association, discussed the importance of a close affiliation between the Pacific Coast Section and the national organization, especially in these uncertain times. He urged every LP-Gas man to join and take part in the work that lies ahead.

Speaking on "The LP-Gas Deal-



HARRY HORN



L. C. RONEY

er During the War," J. D. Anderson, Ransome Co., offered many constructive ideas that should prove helpful to every LP-Gas man:

1. Every dealer should analyze his selling structure in his area, endeavoring wherever possible to correct those methods that are faulty in order to establish the proper profit factor.

2. If it is found that there are accounts that can be better serviced by a competitor, try exchanging accounts with him. It is probable that he has accounts that you could serve more efficiently.

3. Check your truck route. Eliminate all unnecessary trips. It will save rubber, wear and tear, cut delivery costs.

4. Have service man check entire customer accounts to see that all installations comply with safety requirements. This will bring added protection to your business.

5. We believe the heart and crux of the LP-Gas dealers' future operations are repairs and replacements. In the past this work has been largely gratis. This should be stopped and a fair basis of charge developed.

6. Direct solicitation of homes in each marketing area should be made to pick up repair and maintenance



C. M. AMBROSE



J. D. ANDERSON

business, covering all types of appliances and LP-Gas equipment. Here is one way to maintain dollar volume and profits.

7. Turn-over of money is just as important to a business as turn-over in inventories. Under present conditions, with increased incomes, it is time to eliminate poor accounts, replacing them with ones that meet credit requirements.

Clear Questions Through BUTANE-PROPANE News

The new order which is being written by the War Production Board to specifically cover the LP-Gas industry to replace existing Conservation Order M-68-c will be published in the first issue of BUTANE-PROPANE News following release.

In the meantime, or thereafter, if readers are in doubt regarding any phase of this government order and its application to an individual business, they may address inquiries to us and we will endeavor to obtain direct rulings from Washington. When received, such information will be forwarded at once by air mail letter to the inquirer.

You are invited to clear all questions through us.—Editor.



W. B. MAY



J. S. WEST

Building Your Gas Load With Commercial Cooking and Baking

By E. C. BRANDT

Western District Sales Manager, Standard Gas Equipment Corp.

THE merchandising opportunities for building your gas load with commercial cooking and for the sale of commercial gas cooking equipment have, until recently, been greater than at any other time during the entire history of the gas industry. The opportunities which were ours were not only many but varied. The war has temporarily limited sales expansion but all that is outlined herein will apply when the country returns to normal.

That which made great advancement possible has been the ever-expanding and phenomenal growth of the LP-Gas industry. No longer is the sale of commercial gas equipment confined to towns with distribution systems nor to restaurants near gas mains, but this opportunity includes any place where food is cooked and served for profit, whether it be in the smallest village or country roadside tavern. The LP-Gas dealer can sell his service where electricity cannot

go without abnormal basic expense.

Let me outline a promotion method that has been highly successful and which has been carefully chosen and arranged with flexibility for the present needs and adaptability for the future needs of the industry.

First of all, let me dispel from your minds the thought that selling commercial cooking equipment is highly technical, requiring the special services of a so-called kitchen equipment engineer to do the job for you.

The serious problem of constantly rising food costs and competitive fuel costs forces every prospect in your several territories, who is now serving food for profit, to make drastic changes, whether this be a hospital, restaurant, school or institution. In some sections electricity will not be available and both coal and oil will be high in price and the LP-Gas dealer can now be of real service by helping to offset these rising costs. By changing to LP-Gas from either coal or oil, cooking costs can be lowered from 25% to 50%.

To fit yourself and your LP-Gas service into today's picture of building your gas load with commercial cooking, I recommend that you use the direct survey and cost



E. C. BRANDT

comparison method of selling. The very first need in the sale of commercial cooking equipment is an honest yardstick which will compel the prospect to make a fair total of the costs of cooking with competitive fuel he is now using and then to compare this figure with the total cost of cooking with LP-Gas.

The second need is an honest yardstick of comparative advantages of gas for selling the prospect who is now using coal, oil or electricity. Both enter into the total costs of using any fuel and thereafter the successful method of selling commercial gas cooking equipment is by direct surveys and cost comparison. We have found this method very effective. The cost comparison sheets and proposal forms presented are the result of considerable study and experience and are self-explanatory. Looking over these cost comparison sheets and proposal forms, you will find that they include every legitimate cost which should be considered. These forms or blanks which the company furnishes should always be filled out in front of the prospect you are trying to sell. Do it with his aid. Use his figures to make up the totals as this is the right way to use this successful sales method.

Must Call On All Prospects

Successful LP-Gas dealers who have tried this sales promotion first analyze their entire territory, listing all places where cooking is sold for profit, then systematically call on every one and offer to make a survey while there. They list the

equipment in use and how long it has been in use, together with the monthly fuel cost, the amount of food cooked and type of food, whether regular meals or short orders, and the average servings per day. They study the situation and make up a suggested layout of LP-Gas equipment while there.

You will be surprised to find that your prospect is not interested in simply buying a stove of steel and iron, so get down to facts and do not spend all your time talking about the price of gas or the cost of the gas equipment. What your prospect will want to know is, how many pies or loaves of bread or perhaps cakes will the oven on the range you are trying to sell him, turn out on a tank of gas and how much time can he save. How many roasts can he turn out of the oven on a tank of gas and what will the savings amount to in shrinkage over his present type of equipment. Often this one item alone will pay for new equipment in a surprisingly short time. How much cooler will his kitchen be and how much will he better his working conditions in the kitchen by using modern, insulated, heat-controlled LP-Gas equipment. He also will want to know how many potatoes, fish, cutlets he can turn out of a fryer on a tank of gas and how much oil or grease he can save by using a modern, automatically controlled fryer. What will his steaks and chops look like and how fast can he broil on a tank of gas. Talk gas consumption in terms of pounds of roasts, steaks, pies, bread, etc. That's his language and one of the problems which I mentioned is to

learn to talk his language from his viewpoint.

You have to show him how your LP-Gas equipment will pay for itself over a period of time from both food and fuel savings and at the same time assure better cooked food and reduced temperature in his kitchen and dining room. Remember always that your prospect is making what he considers a vital change in his business, which often requires a re-training of help, so spend some time explaining your equipment to the chef or cook.

If at all possible, put a commercial hotel range on your sales floor so that you can demonstrate the stove. If you cannot do this, arrange to take your prospect where gas ranges are installed or where you can demonstrate them. I believe that the strongest argument is in your favor of such a demonstration, because by demonstrating the stove, you prove your point and the result is that everything

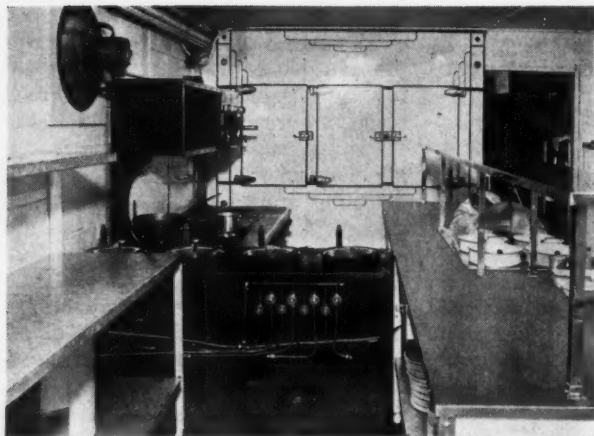
else you say means very much more.

The trend today is to gas and to modern gas equipment. We should invite every manager or owner of a place where food is cooked for profit, to replace his old or obsolete equipment with modern, commercial, liquefied petroleum gas ranges, and above all, we should strengthen the position of the LP-Gas industry by selling only the best type of commercial gas cooking equipment which is adequate for the needs. In this manner can we call attention to the many special and inherent advantages provided by the use of LP-Gas for commercial cooking.

On the Vulcan commercial range, 75% of all commercial cooking is done on the top. The closed top section is used for soups and stews. It is ideal for the place where three regular meals are served each day, because a large quantity of food can be cooked on the hot top section with the use of only one or two

▲
The kitchen of the Candfield Roosevelt Cafe in Des Moines, Iowa, showing a Standard Gas Equipment Corp. heavy-duty commercial range.
▼





▲
Deep-fat fryer, second
range and bank of indi-
vidual shut-off valves,
Candfield Roosevelt Cafe.
▼

burners. The open top section is for short order work. The burners are located far apart, so that large stew pots and kettles can be used. The griddle section is used for fry work of all kinds and in the rear of the griddle is the removable grease drain. Under the griddle is the very latest type ceramic broiler for faster speed and better quality broiled food. The ovens are ample in width and each oven is insulated with thick rock wool. Each oven has a Robertshaw oven heat control which improves cooking results and saves gas. Oven doors are tight fitting, well balanced and double insulated, which saves heat and makes the range more comfortable for working. Cast iron insulated oven bottoms assure long life and even distribution of heat and on this bottom roasting pans can be placed. The safety oven cock handles and the smooth front and concealed manifold make the range not only goodlooking, but sanitary and easy

to clean, with a minimum of work. Bake ovens, fryers, special broilers, urn burners, and counter, as well as kitchen appliances, are all available today to the LP-Gas dealer. Significant savings such as those illustrated in Form 1 are obtainable when replacing old with modern gas equipment.

Coal versus Gas

Coal as a commercial cooking fuel has ceased to be a factor for the past eight or ten years where gas is available, due to the many disadvantages of solid fuels. Manual labor is necessary to start and maintain ranges and the storing and handling of both coal and ashes are an additional expense. Coal ranges must be kept fired between cooking periods; no shut-down is possible. They also lack flexibility due to dependence on flue and atmospheric conditions for proper combustion. This lack of control of the fire results in excessive kitchen temperatures, tending

to increase ventilation and refrigeration costs and at the same time produces excessive shrinkage in meat cooking due to high temperatures existing in the ovens.

There is a constant fluctuation in price of coal as compared with gas over the same period.

The maintenance costs of coal range installations are high, due to the necessity for repairs in grates, firebrick, linings and tops.

Frequent redecorating of the kitchen is expected, due to the effects of soot and dust.

Oil versus Gas

It is necessary to keep the entire oil range hot at all times in order to eliminate long heating-up periods. Excessive kitchen temperatures greatly lower the efficiency of the help and ruin dispositions.

Due to the fact that the oil

FORM 1. COST COMPARISON OF PRESENT

GAS EQUIPMENT AND NEW EQUIPMENT

PREPARED FOR: WALKER TAVERN

DATE: 10/30/40

ADDRESS: CENTERVILLE

3-#3751 VULCAN RANGE. 1-#3756
BROILER. 1-#761 OVEN

PRESENT GAS
EQUIPMENT

NEW GAS
EQUIPMENT

3-#6730 RANGE. 1-#6744
BROILER. 2-#5018 OVEN

1. ACTUAL COST OF GAS FOR 12

MONTHS' COOKING:- (TO ARRIVE AT
ACCURATE FIGURES AVERAGE BILLS
FOR PAST 3 YEARS.)

\$1800.00 \$1440.00

ESTIMATED COST OF GAS FOR

12 MONTHS' COOKING

20% SAVING

2. REPAIRS AND MAINTENANCE:- INCLUDE RINGS, LIDS, BURNERS, DOOR SPRINGS, ETC.

50.00 40.00

3. MONEY LOSS DUE TO MEAT SHRINKAGE:- LACK OF OVEN HEAT CONTROL IS RE- SPONSIBLE FOR GREATLY REDUCING NUMBER OF SERVINGS PER POUND OF ROAST.

832.00 208.00

BASED ON 20% SHRINKAGE FOR
PRESENT EQUIPMENT. 5% FOR NEW
400# PER WEEK x 20% AS PRICE
PER LB. = \$80. 20% OF \$80 =
\$16. \$16 x 52 WEEKS = \$832.
5% OF 80 = \$4. \$4 x 52 WEEKS
= \$208.

4. MONEY LOSS DUE TO HOT KITCHEN:- LACK OF OVEN INSULATION MAKES OP- ERATING COST FOR EXTRA EXHAUST FANS; HIGHER COST FOR AIR CONDI- TIONING OF DINING ROOM DUE TO HEAT LEAKAGE FROM THE KITCHEN; EXTRA EXPENSE FOR MAINTAINING PROPER REFRIGERATION IN A HOT KITCHEN.

COOLER KITCHEN BECAUSE OVEN
IS INSULATED!

5. INTEREST ON INVESTMENT:

\$ 900.00 @ 6% PER YEAR.

54.00 79.50

VULCAN #

INSTALLED AT \$ 1325.00

@ 6% PER YEAR.

6. MISCELLANEOUS:

7. TOTAL COST PER YEAR

2736.00 1767.50

PER MONTH

228.00 147.20

range, which resembles the old-fashioned coal range, has only one burner, the oven temperature is controlled by manipulating the oven damper. When the top heat is decreased, the oven temperature becomes excessive. There is no flexibility in comparison to a gas range.

Oil cannot be burned as a liquid. It is first necessary to make a gas from it before it will burn. All conditions for gasifying and combustion must be favorable before it is possible to both make a gas and burn it in one operation. Oil ranges are not sealed tight enough to prevent fumes from leaking out around cover plates, combustion chamber and flues. Also, oil leakage and spillage frequently occur between the tank wagon, storage tank, copper tubing, and the burner.

Oil Ranges Slow to Heat

Oil ranges are slow to heat up at the start. The ovens are especially slow because the oven heating is done by the flue gases which have given up their high temperature to the top of the range.

Poorer quality goods are usually produced in oil ovens due to lack of exact temperature control and excessive shrinkage of meats occur because of uncontrollable oven temperatures.

Simple gas burners are more dependable than complicated oil burners.

The price of oil fuel is not constant. It fluctuates from time to time. It is hard to predict how high the oil price will be in several years but we know that the price today is higher than it was

several years ago. Heating oil has been a by-product from gasoline up until now and this has resulted in the price being kept low enough to dispose of this by-product. In 1936, gasoline just supplied enough by-product heating oil to meet the demands. When heating oil is not a by-product it is to be expected that a price increase will result.

Two Fuels Won't "Mix"

Since oil equipment is not available to perform all kitchen operations, when an oil range is installed, the other operations must remain on gas. The use of two fuels in a kitchen is not desirable. The operators become confused in the handling of two types of appliances due to the different igniting and operating requirements. In the normal kitchen, gas is used for broilers, salamanders, coffee urns, steam tables, bain-maries, deep-fat fryers, water heaters, toasters, etc.

The consumption of gas on the ranges, alone, in the average kitchen runs from 25% to 40% of the total fuel used. Most gas companies have some form of a promotional gas rate, so designed that the more gas used the cheaper the rate. When an oil range is installed, it is the cheapest priced gas which is replaced, which results in the restaurant earning a higher average rate. Even if the gas fuel used is decreased between 25% and 40%, it only decreases the gas bill between 15% and 35% in most cases.

A typical prospect's form which evaluates many of the costs of using fuel oil in the commercial kitchen is shown in Form 2.

FORM 2. COST COMPARISON OF FUEL OIL AND GAS

PREPARED FOR: HIGHWAY DINER

DATE: 10/30/40

ADDRESS: TURNPIKE #29

1-4 OVEN, 1 FIRE-RAY BURNER	OIL	GAS	4 #5730 WITH SHELVING
1. ACTUAL COST OF OIL FUEL FOR 12 MONTHS' COOKING. (9,000 GALS. @ .06 PER GAL.)	\$540.00	\$900.00	ESTIMATED COST OF GAS FOR 12 MONTHS' COOKING. (BASED ON 10 GALS. AS EQUIVALENT TO 25 POUNDS OF LP-GAS OR 22,600 POUNDS AT 4 CENTS.)
2. POWER EXPENSE:- COST OF ELECTRICITY TO OPERATE OIL RANGE	84.00		NO ELECTRICITY REQUIRED
3. REPAIRS AND MAINTENANCE:- FIGURE REPLACEMENTS ON TOP CASTINGS AT LEAST ONCE A YEAR AT \$8 EACH. INCLUDE MOTOR REPLACEMENT AT \$20 ANNUALLY. REDUCE TO MONTHLY COST.	150.00	40.00	NO MOVING PARTS.
4. MONEY LOSS DUE TO HIGHER BRACKET GAS RATE:- RESULTS FROM NOT HAVING ALL KITCHEN EQUIPMENT USING GAS, AND THEREFORE LOSING LOWEST RATE.	400.00	300.00	COFFEE & WATER URNS (3) 20.00 SHORT ORDER STOVE 15.00 (BASED ON \$1.00 M.C.F. COMPARED WITH .70 FOR ALL GAS KITCHENS)
5. MONEY LOSS DUE TO MEAT SHRINKAGE:- LACK OF OVEN CONTROL IS RESPONSIBLE FOR GREATLY REDUCING NUMBER OF SERVINGS PER POUND OF ROAST.	1248.00	316.00	BASED ON 20% SHRINKAGE FOR OIL, 5% FOR GAS. 600# PER WEEK @ 20¢ PER LB. = \$120. 20% OF \$120 = \$24. \$24 x 52 = \$1248 5% OF 120 = \$6.96 x 52 = \$361.92
6. MONEY LOSS DUE TO HOT KITCHEN:- OPERATING COST FOR EXTRA EXHAUST FANS; HIGHER COST FOR AIR CONDITIONING OF DINING ROOM DUE TO HEAT LEAKAGE FOR THE KITCHEN; EXTRA EXPENSE FOR MAINTAINING PROPER REFRIGERATION IN A HOT KITCHEN.			
7. COST OF RE-DECORATING:- OIL PUMPS BLACKEN WALLS AND CEILING OF KITCHEN -- SOMETIMES SEEP INTO DINING ROOM AS WELL. INCLUDE COST OF ANNUAL REDECORATING OF KITCHEN.			
8. MONEY LOSS DUE TO HIGHER FIRE INSURANCE RATES:- AN OIL RANGE IS REGARDED AS A CONSTANT FIRE HAZARD DUE TO LEAKS AND SPILLAGE OF OIL.			
9. INTEREST ON INVESTMENT:- \$ 1700.00 @ 6% PER YEAR.	2422.00 186.00	1286.00 57.36	VULCAN RANGE # 5730 (4) INSTALLED AT \$ 966.00
10. DEPRECIATION:- 20% BASED ON 5-YEAR LIFE \$1700 DIVIDED BY 7 EQUALS ANNUAL DEPRECIATION	340.00	95.60	BASED ON 10-YEAR LIFE. \$966.00 DIVIDED BY 10 EQUALS ANNUAL DEPRECIATION
11. MISCELLANEOUS:-			
12. TOTAL COST PER YEAR per month	2864.00 238.66	1707.96 142.33	

Electricity versus LP-Gas

There is a very definite relation between the heat content of butane-propane gas and of one kilowatt of electricity. One pound of butane-propane gas contains 21,500 B.t.u. One kw. hr. of electricity contains 3412 B.t.u.'s. Theoretically, it takes 0.16 lbs. of LP-Gas to do the same work as one kw.hr. Practically, due to the difference in efficiencies of the appliances of the two fuels, this ratio is not maintained in actual operation.

In tests run in the Mall and Internal Revenue cafeterias in Washington, D.C., where the former kitchens were equipped with modern insulated and controlled gas equipment and the latter kitchens were equipped with modern electric cooking equipment, the actual operating ratio was 6000 B.t.u. of gas as the equivalent to 1 kw. hr. of electricity for similar types of meals being served.

In making comparisons of gas and electric usage per meal the quality of the equipment, if insulated and heat-controlled, must be taken into account. Fair comparisons cannot be made between modern electric equipment and non-insulated and non-heat-controlled gas equipment. The human factor also enters into the picture because intelligent usage of gas equipment can save on the gas bill. The heat control prevents the operator from overheating an oven and thereby prevents him from wasting gas. Since the larger and more complete meals require more heat in their preparation, comparisons must consider the type of meal.

In considering the cost of elec-

tricity, the important point is not to figure costs on the commodity rate, but to add to the commodity rate the demand charge. If this is the type of rate which a restaurant is operating on, any additional load which is added will obviously increase the demand charge.

If the prime consideration in the fuels selected is economy, it precludes the use of electricity, for the reason that the first cost in electric equipment is high and the operation costs are likewise high.

Recently an interesting investigation was made by an impartial organization on the question of gas versus electric cooking. This investigation was made to determine the type of fuel to be used at the new Radio City dining rooms. The investigation was conducted by the engineers at Rockefeller Center. After an exhaustive study, they decided to use gas and today gas is being used for all major cooking purposes, despite the fact that Radio City is generally spoken of with the electric industry.

Gas again was selected by the Rockefeller Center engineers when a fuel was decided upon for the Rockefeller Center apartments, an apartment house erected in Radio City for Radio City executives. One hundred forty-three gas ranges have been installed.

Another interesting case of where gas was selected in competition with electricity is Wallum Lake sanatorium in Rhode Island. In this case, the selection of gas was more significant than the selection of gas at Radio City, in that there was no gas available at Wallum Lake and it was a foregone conclusion that

electricity must be used, until a comparison was made between the cost of using electricity and bottled gas. Despite the generally higher prices of bottled gas as compared with city gas, gas was decided upon by the State purchasing agent, the architect and the W.P.A. engineers.

Dependability is an important requisite of a fuel for cooking. Gas is the most dependable fuel, independent of all weather conditions and ready to serve you at all times. Electrical outages for short or long-term periods are not uncommon, particularly in the rural districts.

It is a serious matter for an institution to be wholly dependent on one fuel whose service may be interrupted without notice at the most inconvenient time.

Flexibility of gas fuel is unequalled. It is not limited to high and low heat. The gas burner will operate efficiently with any degree of heat, from minimum to maximum flame.

Form 3 illustrates a conservative evaluation of demand and commodity charges and maintenance costs of electric equipment as compared to gas.

FORM 3. COST COMPARISON OF ELECTRICITY AND GAS

PREPARED FOR: RUSHVILLE HOTEL

DATE: 10/30/40

ADDRESS: RUSHVILLE

3 SEC. ELEC. RANGE, 1 BROILER 1 ELEC. FRYER		ELECTRICITY		GAS		3 #5730 RANGES, 1 #5794 FRYER. 1 #5744 BROILER
<u>1. ACTUAL COST OF ELECTRICITY FOR</u>						<u>ESTIMATED COST OF GAS FOR</u>
<u>12 MONTHS' COOKING.</u>						<u>12 MONTHS' COOKING.</u>
WHAT IS YOUR DEMAND RATE? 15 KWH. @ \$1.25 PER KWH.				\$225.00		
AVERAGE NUMBER OF KW HOURS USED MONTHLY? 15,000 KWH. @ 15 PER KWH. x 12 = 180,000 KWH. @ .015		2700.00		\$2016.00		BASED ON 1 KWH = 0.28 LBS. GAS OR 50,400 POUNDS AT 4 CENTS.
<u>2. REPAIRS AND MAINTENANCE:- INCLUDE COST OF REPLACING UNITS AND SWITCHES. TOP UNITS \$120 BROILER 160 SUNDRY 30</u>		300.00		75.00		
<u>3. INTEREST ON INVESTMENT:-</u>						VULCAN EQUIPMENT \$ 1150.00
\$1600 @ 6% PER YEAR.		96.00		69.00		INSTALLED AT \$ 1150.00
						@ 6% PER YEAR.
<u>4. DEPRECIATION:-</u>						
BASED ON 10-YEAR LIFE.						BASED ON 10-YEAR LIFE.
\$ 1600 DIVIDED BY 10 EQUALS		160.00		115.00		\$ 1150.00 DIVIDED BY 10
ANNUAL DEPRECIATION.						EQUALS ANNUAL DEPRECIATION.
<u>5. MISCELLANEOUS:-</u>						
<u>6. TOTAL COST PER YEAR</u>		3481.00		2475.00		
PER MONTH		290.08		206.25		

Keep Up Pressure on Air Raid Horns

BECAUSE of widespread interest in the stories which have appeared in *BUTANE-PROPANE News** about the propane air raid horns installed on fire houses in Long Beach, Calif., additional facts have been obtained from E. Hawes, Long Beach communication engineer.

The most important thing to remember when considering this type of air-raid signal is that the system must be built around the horn. It must first be determined what horn

is available, what pressure the horn requires, and how far the sound of the horn will carry.

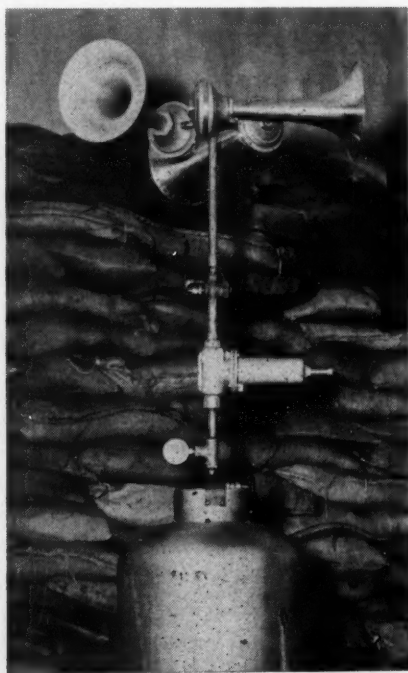
In the Long Beach installations, the air horns used were manufactured by the Grover Products Co., of Los Angeles. They are 18 in. long with an end flare of 9 in. They have a very high pitch and can be heard over the average city noises. For air raid warning service the horns are installed in sets of three—one set to every square mile. Although this make of horn has a very wide latitude and will operate on pressures of 50 to 150 lbs., it is advisable to plan on not less than 100 lbs. of pressure at all times. This will guarantee pressure for a sustained blast for a sufficient length of time.

The LP-Gas system for the operation of air-raid horns is comparatively simple. A few of the more important points learned by the Long Beach firemen are covered here:

1. A regular 210 lb. ICC cylinder is large enough. It should be placed outside the building, in such a manner that an extension handle may be run through the wall from the gate valve on the tank, making it possible for a person on the inside of the building to open the valve.

2. In climates where there is any doubt about a constant, sustained pressure on the cylinder, some arrangement should be made to provide ample vaporization. In Long Beach it was found that water from the regular city main was the right temperature to maintain pressure on the coldest nights. In colder climates hot water might be necessary, or other sources of heat applied. In any event there must be a constant pressure under all weather conditions.

* Feb., Page 88; March, Page 72.



The assembly which shows arrangement of equipment for air raid horn.

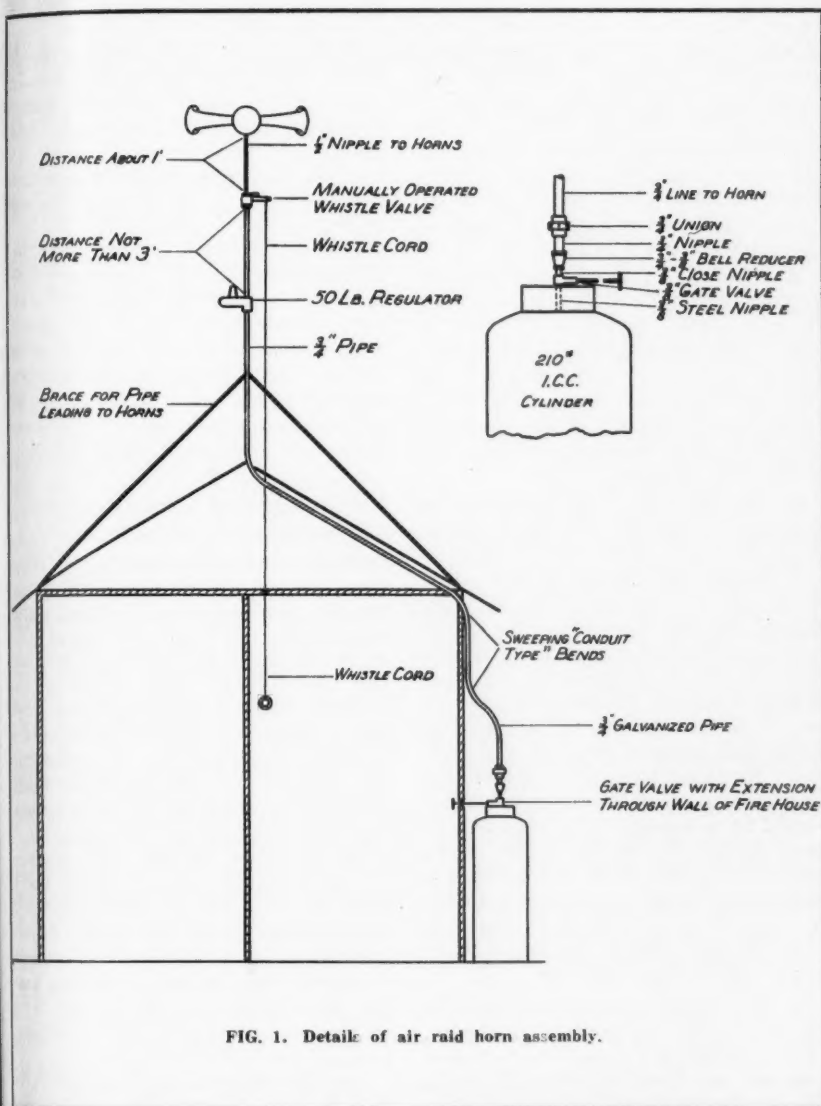


FIG. 1. Details of air raid horn assembly.

3. The pipe running from the cylinder to the horns should be as straight as possible, and "conduit type" bends are preferred. All elbows should be eliminated as these restrict the velocity of flow—very important in this type of installation. Remember—volume is necessary. Three-quarter-inch galvanized pipe is used from the cylinder to the whistle valve. From there to the horns, ½-in. is used. Three-eighths-in. nipples are used at the cylinder (see Fig. 1).

4. The use of a pressure gage is entirely optional. It is not necessary in most cases; however, if there is any doubt about a constant pressure on the cylinder a gage will always give the answer. It was used on early installations in Long Beach to learn what would be necessary to maintain a constant pressure.

5. The use of a regulator is also optional, providing you can obtain horns that are equipped with restrictive orifices. Regulators were used on all of the first installations in Long Beach, but on later units the horns came equipped with a restrictive orifice and the regulators were not used. Where installed, Reliance regulators, set for 50 lbs., gave excellent service. These are manufactured by the Reliance Regulator Corp., Alhambra, Calif. With most horns a regulator would be necessary. If a regulator is used it should not be placed more than 2 or 3 ft. from the horns. If there is too great a distance between the regulator and the horn there is liable to be a lag in operation when gas is turned into the line.

6. The whistle valve is manually operated—believed best in this case. It is located very close to the horns—about one foot. Any quick acting valve built for signal purposes can be used. The cord from the valve extends down through the roof to the

room in which the operator is stationed, preferably in the room where the gate valve from the cylinder extends through the wall.

7. The gas is turned on by the operator when the "alert" signal is announced. If water for the tank is necessary this should be ready. It is important to remember that extremely hot water should not be used for too long a time—the pressure might become too great.

Every installation produces its own problems and the man making it must figure them out for himself. In the case of air raid horns the job is simple but must be reliable at all times. Cylinders, pipe, fittings, and other incidentals may all be purchased from any supply house. In most cases some sort of priority may be had.



Newly Formed Company Gets Government Contract

Work on buildings for the Navy Coast Guard Division on Government Island, Alameda, Calif., was begun recently by the newly formed organization of Ransome Co. and Christensen and Lyons. This company was created recently when these two well known Pacific Coast firms created a separate organization for construction work. J. D. Anderson is financial manager of the joint venture; Frank Busse is project manager.

The work will include the construction of barracks, administration buildings, ship school, mess hall and central heating plant. There will be five barracks, each housing 500 men.

The contract includes streets, sewers, pipe lines and sidewalks. Work on the present project will be finished in approximately 100 days.

The temporary office is being heated with butane. Three shifts of 600 men go to work and quit to the toot of a butane operated whistle.

THE BOTTLED GAS MANUAL

Chapter 10 The Fundamentals of Thermostats Part I

ALTHOUGH it was uncomfortably warm upon the road today it is cool enough tonight for us to enjoy a fire in the fireplace. As I sit here watching the dancing flames my attention is called to cracks in two of the bricks in which the eyes which support the crane are placed. Your first thought probably is these cracks were made when the holes were drilled, but this isn't so. I drill those holes myself with a rotary stone drill before the bricks were laid, and I did it under water and did not force the drilling. No chance for cracking here, yet they are cracked! What caused it?

Unequal expansion! Iron expands more rapidly than brick under the influence of heat. Something had to give, so the bricks cracked!

This brings thermostats to my mind. Perhaps you may say, "Why in the world do two cracked bricks and two pieces of iron make him think of thermostats?" It is this matter of the different expansion of substances under the influence of heat, and it is upon this fundamental natural characteristic of all matter that the operation of thermostats is based.

What is a Thermostat and What Are its Uses? To us in the gas industry it is a gas control valve,

usually of the well-known "poppet type," the opening and closing of which is controlled by some type of thermostatic element. By regulation of the opening and closing of this valve the amount of gas flowing to the burner is controlled, and thereby the temperature of the appliance to which it is connected is closely regulated within desired limits. Among many uses of thermostats in our industry are:

Domestic and commercial range ovens; commercial bake ovens; water heaters; floor furnaces; space heaters; gas-fired steam radiators; central gas-fired heating plants; refrigerators; coffee and water urns; steam tables; deep fat fryers; annealing, carburizing and heat treating furnaces; incubators and brooders; waxers; sterilizers; lead pots; pottery and other kilns; glue pots; melting furnaces; clothes dryers; gas ironers; industrial vats; refractories; pasteurizing equipment, and brine tanks.

These are but a few of the many applications that we may be called upon to service, but the list shows

- The Bottled Gas Manual series by C. C. Turner, started in the July, 1941, issue of BUTANE-PROPANE News and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—Editor.

the importance of a thorough understanding of the principle of thermostats to the gas man. As a treatise on the many thermostatic types and applications would require several volumes we can only deal here in generalities.

In the liquefied petroleum gas industry thermostats may be used on all gas appliances; in particular, their application is widely recognized on domestic ranges, automatic water heaters, floor furnaces, space heaters, central heating plants, refrigerators, and industrial and commercial installations.

Expansion of Matter Under Heat. With but very few exceptions all matter expands under the influence of heat—contracts in the absence of heat. The amount of expansion or contraction not only differs with the amount of heat, but each material has its own rate of expansion or contraction per degree change in temperature. This amount of ex-

pansion or contraction is known as "The Coefficient of Linear Expansion," and it is expressed in the percentage that the dimensions of a substance vary for each degree change in temperature. A table of coefficients of a number of familiar substances is shown in Table 1.

An Example of the Use of Linear Coefficients of Expansion. If you were a bridge builder this matter of expansion coefficients would be highly important to you. Let us suppose that you were to build a steel bridge 1000 ft. long, that the lowest temperature at its point of location would be 50° below zero Fahrenheit and the highest temperature 110° Fahrenheit. Here is a temperature differential of 160°. The coefficient of linear expansion for soft steel is .0000061; therefore, if the bridge were designed to be 1000 ft. long at 50° below zero, its length at 110° would be 1000 +

TABLE 1. LINEAR COEFFICIENTS OF EXPANSION FOR EACH DEGREE FAHRENHEIT

Substance	Coefficient	Substance	Coefficient
Aluminum, cast	.00001234	Magnesium	.00001571
wrought	.0000123	Monel metal	.000007755
Brass, cast	.00000957	Nickel	.00000635
plate	.00001052	Porcelain	.00000200
wire	.0000107	Silver, pure	.00001079
Brick, common	.00000306	Solder, common, average	.000013794
fire	.00000300	Steel, cast	.0000061
masonry	.0000031	hard	.0000073
Bronze, average	.0000101	medium	.0000067
Cement, mixed, Portland, pure	.00000594	soft	.00000666
Concrete, average	.00000795	stainless annealed, average	.000006066
Copper	.0000093	stainless hardened, average	.000006066
Gold, pure	.00000786	Tin	.00001163
14K	.0000083	Zinc, pure	.00001407
Graphite	.0000044	Zinc-S, tin-1	.00001496
Gun metal	.000010065	Liquids—Cubical Expansion	
Ice	.00002805	alcohol	.00058
Iron, cast	.00000556	mercury	.0009984
wire	.0000069	Water	.0002588
wrought	.0000067	water, saturated salt solution	.000277
Lead	.00001571	ether	.00050

NOTE: Above coefficients of expansion are for Fahrenheit temperatures. If the coefficient for expansion is given for Centigrade, multiply it by 0.5555 to convert it to a Fahrenheit coefficient.

(1000 × 110 × .0000061) = 10000.67 ft. In other words its length would increase $0.67 \times 12 = 8.04$ inches. Obviously expansion joints would have to be provided to take care of this variation in length.

The Two General Types of Thermostats. There are two general types of thermostats with several sub-divisions, depending upon the nature of the expanding matter and the method by which its linear or volumetric variations under the influence of heat are directed so as to actuate a valve in the gas supply line. The most common of these two general types is the *gradual action thermostat*, more commonly known as the *throttling thermostat*. Its advantages are simplicity, evenness of temperature control, and low initial cost. It is particularly adapted to such operations as baking, chicken brooding, or in other applications where wide fluctuations in temperatures would be harmful.

The other general type is the *snap-action thermostat*—sometimes called the *instantaneous thermostat*. Under certain conditions it is more economical than the gradual action thermostat, and it furthermore fills a need where large and varied amounts of heat are required in a hurry.

Classification of gradual action thermostats. The classification of gradual action thermostats depends upon the nature of the expanding matter which actuates the valve mechanism. They are as follows:

1. Rod type—in which the expanding matter is a solid.

2. Hydraulic type—in which the expanding matter is a liquid.

3. Pneumatic type—in which the expanding matter is a gas.

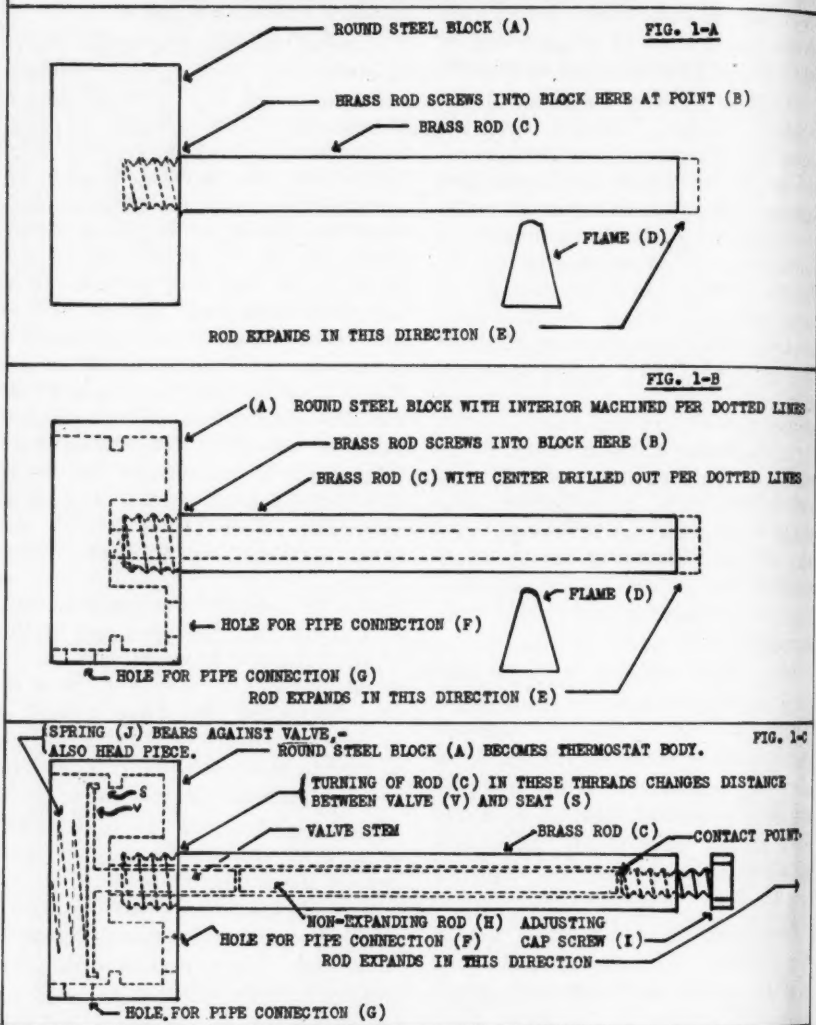
Gradual Action Rod Type Thermostats. Fig. 1 illustrates the evolution of a rod type gradual action thermostat. First, imagine a condition such as is illustrated in Fig. 1-A. Here we have a brass rod screwed into a block of steel. Beneath the brass rod is placed a tiny flame. If the block of steel is anchored but the rod is not, then the expansion rod will be transmitted in the direction indicated.

In Fig. 1-B we have the same block of steel and the same brass rod, but we have machined out the interior of the steel block and drilled out the center of the brass rod thereby making it a tube. The expansion of the tube is still the same amount and in the same direction.

In Fig. 1-C we have inserted several parts. Into the open end of the brass tube we have tapped a cap screw. Within the tube and ahead of the cap screw we have placed a relatively non-expanding rod which is free to move within it. Ahead of the non-expanding rod there is a poppet valve similar to that which is used in automobile engines, and behind the poppet valve is a spring which keeps the valve tightly pressed against the non-expanding rod, and the non-expanding rod tightly pressed against the end of the cap screw in the tube. We can decrease the distance between the valve and valve seat in two ways; one is by turning the body of the thermostat off from the brass tube;

FIG. 1

EVOLUTION OF THE ROD TYPE OF THROTTLING THERMOSTAT



the other is by backing out on the cap screw in the end of the brass tube.

Let us insert the brass tube into

an oven, attach the body of our crude thermostat firmly to the frame of the range and see just what happens. The brass tube will

lengthen under the influence of the heat in the oven, and its elongation will be in a direction away from the body of the thermostat. The non-expanding rod because of the force exerted by the spring will travel in the same direction thereby allowing the valve to move closer to the seat, and eventually close.

The Fundamental Principle of Hydraulic or Pneumatic Thermostats. There is a gadget which is used for merry-making at New Year's time which perfectly illustrates the principle of the bellows in a hydraulic or pneumatic thermostat. This is the whirligig that is coiled up in a circle about two inches in diameter and at one end of it there is a mouth-piece. When your New Year's partner blows into this mouthpiece the gadget suddenly uncoils in your face and straightens into a paper tube about two feet long. Another illustration is the prosaic garden hose. Let's coil this hose up and close the the nozzle end. Now turn the pressure onto this hose at the other end. The hose will make an attempt to straighten out.

If we should fill the hose with water, plug both ends, coil it up and leave it out in the sun the same thing would happen. Why? The water within it would expand under the influence of the heat from the sun. Pressure in confined liquids is the same in all directions. Acting upon the inner side of the coil it tends to distort it, and this side being convex in relation to the confined water the pressure is exerted to make it concave in its relationship. Between the condi-

tions of being convex or concave a straight line exists, and this is why the hose straightens out.

(The unusual length of Chapter 10 of The Bottled Gas Manual—20 pages in all—precludes publishing it in full in this issue. The remainder will appear in May and will contain the Questions and Answers for the entire chapter.)

Information on Rubber Saving Is Available to Industry

Mimeographed reprints of the text of an article on the subject "Don't Abuse Rubber—How to Prolong Its Life" are now available upon request to The B. F. Goodrich Co., Akron, Ohio. William S. Richardson, general manager, Industrial Products Sales Division, is the author. The article is designed to aid industrial managers in their efforts to save rubber products.

After a general discussion of the present rubber scarcity and restrictions, due to the war, and some general rules on how to prolong the life of all rubber products, the article has chapters on water hose, fire hose, air hose, steam hose, hose couplings, tires, conveyor belts, V-belts, rubberized clothing, mats and matting and rubber-lined tanks and other equipment.

Shell Oil Co. Will Recover Butanes From New Plant

Designed to produce butane as basic stock for the manufacture of aviation gasoline, the construction of a new natural gasoline plant has been determined upon and the contract awarded by the Shell Oil Co., Inc.

The plant will be located in the Cromwell field of Oklahoma and work will start soon.

SELLING

Slack Time Survey

One constructive step that dealers can take, now somewhat stalemated by selling limitations, is a field survey. Obtain definite and complete information on the families in your territory that are legitimate prospects for your products.

Make a house-to-house canvass. Frankly explain who you are, what information you seek, and why you want it. Record for every house in your territory the kind of fuel now used; the number, character and age of appliances used and the brand name of the equipment. Determine, if possible, what new purchases are intended. Find out how many are in the family and—if you can—who spends the money, husband or wife. Make a note of the family source of income and appraise tastes and social standing by the appearance of the house, inside and out, and the surroundings. Jot down the children's names. Don't be afraid to ask a lot of questions.

At the office, transfer to cards *in duplicate* all of this information. Now you have the most valuable sales aid it is possible to obtain. Divide among your salesmen the cards which represent legitimate, immediate prospects. Have them follow-up by phone or personal call. It is amazing how much more headway you can make with a

prospect on a second call, especially if you have foundational knowledge about the family's habits and needs.

Also, use this card index as a basis for determining your potential sales field in your own territory. Careful analyses will enable you to determine how many families are likely to be sold within a given number of years, and whether or not you will have to enlarge your territory to develop a volume adequate for your set-up.

Far-Sighted Selling

Business leaders are already giving serious consideration to economic planning for the period following the war's close. Many firms, geared to enormous production of war supplies, will find themselves without a market when peace is signed—and their hordes of employees will be discharged. American industry as a whole hopes to find ways to take up that labor slack and establish new markets.

The position of LP-Gas dealers is a little different from other branches of business. This industry is in the development and expansion stage. The hard-going is now, when other demands for gas and steel prevent as many installations as there are sales opportunities. When the war is over there probably will be an immediate and huge demand for butane and propane

and the appliances and equipment for its use in the domestic field, especially. Sales will soar and dealers will have to hustle to fill orders.

But rival firms will spring up and competition will appear as never before as the potential of this industry becomes known.

What plans do you have for that post-war period? What are you doing now that will fortify your position later, that will protect your present investment and pioneering efforts and give you the inside track you deserve?

One firm sees in the present situation an opportunity to do an institutional selling job that will build itself into community consciousness in a manner that should extend to many a distant day. It plans to hold a cooking party in the store's sales demonstration kitchen every Saturday afternoon.

Three domestic ranges, supplied from a small stock, will be hooked up to an LP-Gas supply tank and will be available to anybody and everybody for the preparation of any one dish for their Sunday's dinner. Women may bring their meats to roast, their cakes or pies or bread to bake, their vegetables to stew, under the watchful eye of a home service director. Women may do their own cooking or it will be done for them. Seats arranged in tiers will provide visitors with a full view of all cooking operations. As the demonstrator prepares a cake or wafers to pass to the audience and aids the women who are trying their own hands, she will talk in a friendly, intimate way about liquefied petroleum gas—the reasons for its superiority

over other fuels—and the appliances that burn it. She will explain how, in the use of this modern fuel, no resident far removed from natural gas mains need be deprived of city luxuries. Sometimes she will call in the proprietor or a salesman to give a brief talk on burner characteristics or some other semi-technical subject, and the costs of operation.

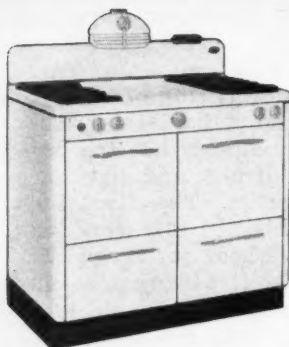
No merchandise will be sold during these periods. No one will be asked to leave her name and address, even. The cost will be charged to advertising, and never will better advertising be obtained at so low an outlay, this dealer believes. He already has the demonstration kitchen and the home service director. The fuel could not reasonably cost him more than five cents per hour per range. But imagine what it will mean to him to have women all over his territory coming into his store week after week, becoming familiar with the fuel and ranges he sells, forming friendly acquaintance with members of his organization, and going home with the desire and determination to some day own such equipment!

In most families, especially in rural communities, the cooking range is the first appliance purchased. With it installed, the door is opened for sale of water and space heaters and a refrigerator.

This dealer sees in his plan a cheap, efficient and effective advertising program that will return fine profits from the first and will build his name and his product into an approved and continuing community by-word.

Grand

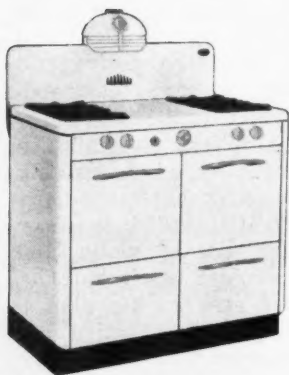
GAS RANGES



SAFETY OVEN PILOT. *Can't be blown out by drafts or by opening and closing of drawer or oven door. 100% cast iron. Placed to assure years of efficient service.*

MODEL RB-84X

Divided cooking top, full 40" wide. Two rear simmer burners, a Giant burner. Oven 18" wide, 19" deep. Oven light. Large compartment and storage drawer, Ebonite finished. Pull-out drop door broiler.



MODEL RB-65X

Divided top, 37" wide. "Peek-a-boo" oven, 19" x 16". Sunshine oven light. Pull-out broiler, two storage drawers. Simmer valves on rear burners. Acid resistant porcelain top.

MODEL RB-6X

Divided 37" top with 2 rear simmer burners. Oven 19" x 16". Two safety-lock oven racks. Two-piece broiler pan, two large storage drawers. Non-glare lamp with built-in timer.

MODEL RB-3X

Conventional top, 37" wide. Pull-out broiler with one-piece broiler pan. Oven 19" x 16", two large storage drawers. Quick positive top burner lighter, two simmer burners.



There's a Grand for every purse, every purpose

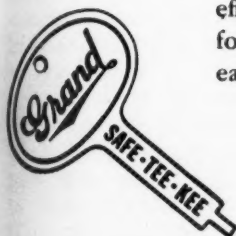
GRAND RANGES • CLEVELAND, OHIO

Division of The Cleveland Cooperative Stove Co.

**specially designed for
superior performance with**

L. P. GAS

Every Grand feature is a selling feature for you . . . because Grand Ranges are specially engineered for top efficiency with L. P. Gas. The Grand line, with its models for every family's purse and cooking needs, makes it easy to convert customers to modern L. P. Gas cooking.



SAFE-TEE-KEE EQUIPPED

An extra safety and economy precaution, exclusive with Grand. This handy removable key locks off the gas supply, safe from prying hands of children, when range is not in use. Gas can't escape or burn needlessly.

THE GRAND CHAMPION

... a luxurious, large-capacity model with six burners and griddle, includes four simmer burners. Roomy Champion oven and radiant Charco-lator Broiler. Two large storage drawers. Smart non-glare lamp with built-in timer. Many other features give proven sales appeal.

LEAKAGE PREVENTED

Every joint and valve is specially sealed and tested for the particular type of L. P. Gas to be used.



GRAND CHAMPION RB-10X

Texas Dealers Are Forming State-Wide Association

By CRAIG ESPY

ALMOST three-quarters of the butane dealers of the state of Texas have been organized by districts into a State butane dealer's association, according to F. M. Shaw, formerly of the Texas Railway Commission, who is concerning himself with the project.

The latest group to organize into a district association is that of the North Texas district which met with Mr. Shaw in Dallas the evening of March 5. Thirty dealers attended the meeting and voted enthusiastically that the organization would serve a good end and to individually support it.

Other districts that have thus far taken similar action are the Northeast Texas district, the Southeast Texas group and the South Texas group. The district around San Antonio is said to be about ready to organize.

Many Districts May Join

It is thought that the Panhandle group, organized prior to the present movement, may later want to become a part of the Statewide group. Other districts that will be invited to organize in the near future are those of Southwest Texas, Central Texas, West Texas and Northwest Texas.

Under the present plan of procedure each district association will elect either five or seven members to its board of directors. The board selects from its membership a per-

manent chairman and a secretary-treasurer. Each district board will later select two of its members who will go to Austin for the formation of the statewide organization, set up *modus operandi*, elect state officers, appoint a permanent secretary, etc. Each district will function individually in the consideration of localized problems but as a unit of the statewide organization.

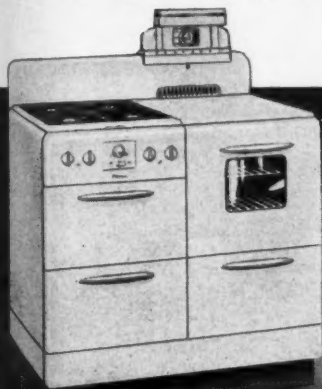
At the Dallas meeting Mr. Shaw presented the case for the organization, pointing out how essential it is for dealers to work together for the common good of all. "The time has come," he said, "when dealers can no longer work independently and gain the ends that they seek in the advancement of the industry." He cited fact-finding surveys as being of definite need at this time in providing necessary facts for the government and mentioned also the need of securing better legislation in the state of Texas. The thought was expressed that the present Texas law governing the industry probably would be changed sometime and that it was desirable for the dealers to be prepared to act.

Roger Tennant, Butane Gas Systems Co., of Dallas, was elected temporary chairman of the group. He likewise spoke of the necessity for butane dealers to work together and praised Mr. Shaw for

**SOMETHING
TO COUNT ON**

FLORENCE SERVES FOR VICTORY!

Florence workers are busy filling important Army and Navy contracts. This is in addition to supplying Florence Ranges and Heaters for Defense Housing projects.



**FLORENCE
GAS RANGES**
For L-P Gas

BACKED BY 70 YEARS' EXPERIENCE

FLORENCE STOVE COMPANY: Gardner, Mass.; Kankakee, Ill.; 1459 Merchandise Mart, Chicago; 49 E. 17th Street, New York; 53 Alabama Street, S. W., Atlanta; 301 N. Market Street, Dallas; and 2730—16th Street, San Francisco.

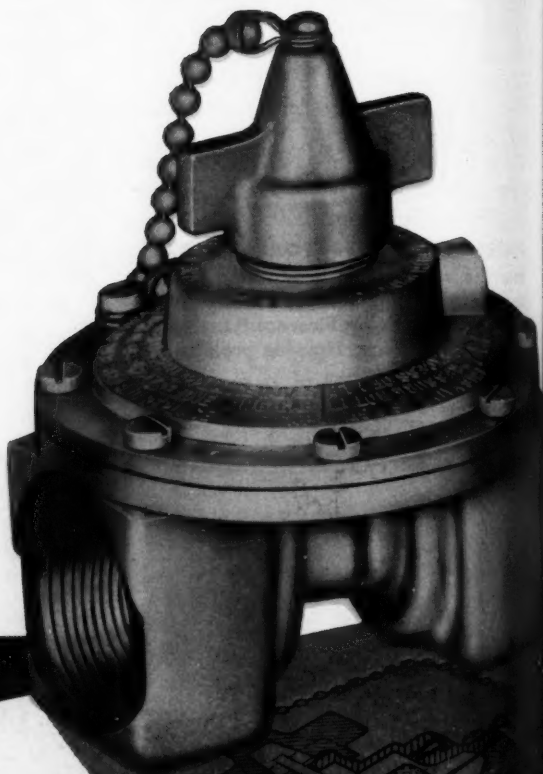
You're looking for something you can count on these days . . . something that will *be there* when you need it!

For seventy years, Florence has been building security for its dealers. And Florence has built it by skillful, painstaking, forward-looking craftsmanship . . . by quality and value that have steadily given Florence Dealers more and more to offer.

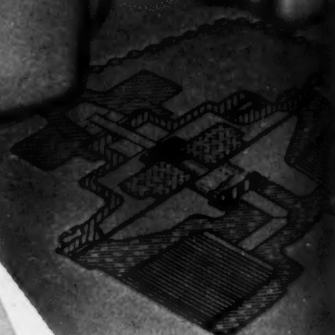
Right now, we are doing our utmost to co-operate with the Victory Program; that's the most important job today for any of us. But within the limits set by that job, we are building you as many new ranges as we can . . . doing our level best for every Florence Dealer everywhere.

Remember that Florence and Florence Dealers have successfully gone through wars and their problems before. We will go through this one successfully, too!

FOR PROTECTION . . . REGO



REGO
AUTOMATIC
CUT-OFF VALVE



REGO AUTOMATIC CUT-OFF VALVES

Planes, ships and tanks are vital protection against invaders that menace our freedom. For positive protection against explosions and fires caused by the escape of gas into a building due to temporary interruption of gas flow to the appliance — use RegO Automatic Cut-off Valves. One of these important devices installed at each gas appliance represents real insurance against accidents.

Whenever gas pressure drops below the required point, the RegO Cut-off Valve AUTOMATICALLY shuts off — IT STAYS OFF UNTIL IT IS RE-SET BY HAND after the gas pressure has been reestablished. It also serves as an excess-flow check valve, in the event that a connection is broken between the service line and appliance.

The RegO Automatic Cut-off Valve is made from non-corrosive and non-porous forged or die-cast parts, accurately machined and individually tested for dependable and effective operation.



Insure perfect performance and economy by insisting on genuine Bastian-Blessing products identified by the RegO trademark.

The **BASTIAN-BLESSING** Co.
4233 Peterson Avenue Chicago, Ill.

Pioneers in equipment for using and controlling high pressure gases.



work previously done for the industry when he served as engineer of the Railway Commission.

In the course of the meeting the following were elected as members of the board of directors: C. H. Lacy, Pittsburgh Water Heater Co., Dallas; C. M. Russey, Southwest Stove & Supply Co. and Butane Gas Sales Co., Fort Worth; Mack Garvin, Butane Equipment Co., Fort Worth; Fred Greenwood, Butane Gas Sales Co., Denton, and

C. B. Vandervoort, Bovalene Gas Co., Wichita Falls. This group elected Mack Garvin as chairman and C. H. Lacy, secretary-treasurer.

Harry Penniman, of Penniman Butane Gas Co., Dallas, urged the dealers to fill in the questionnaires which had been discussed at the New Orleans meeting of the National Association which all will receive and which will provide necessary statistical facts for the office of Petroleum Coordinator.

J. Woodward Martin Appointed LP-Gas Analyst by Government

J. Woodward Martin, of Dallas, Texas, manager of Lone Star Gas Co.'s Stargas Department, has been appointed analyst for liquefied petroleum gases by Harold L. Ickes, head of the Department of Interior. He reported for duty in Washington March 2. Attached to the Office of Petroleum Co-ordinator for National Defense, Mr. Martin will work on problems arising from the need for liquefied petroleum gases for aviation gasoline and synthetic rubber for war uses and the effect such demands will have on the present household and industrial fuel needs for these gases.

Mr. Martin was recommended for the position by the liquefied petroleum gas industry at a meeting held in New Orleans Jan. 9, attended by 300 representatives of the industry. He was president of the Liquefied Petroleum Gas Association for the years 1939 and 1940.

Mr. Martin has been in the gas business since 1923 when he became an engineer for the former Municipal Gas Co., since merged with the Community Natural Gas Co., one of the

operating companies in Lone Star Gas System. He became chief engineer of the Municipal in 1925 and served in that capacity for four years, transferring to Lone Star Gas Co. in 1929 to become sales manager for the Stargas Department. In 1939 he was made manager of the Stargas Department.

During such period as Mr. Martin is occupied in Washington, R. F. Foster will be in charge of the Stargas Department, of which he was formerly assistant manager.



Warren Petroleum Corp. Has New Plant at Madill, Okla.

Warren Petroleum Corp.'s new 30,000-gal. plant at Madill, Okla., which will make butane, propane, and natural gasoline went into operation the first week of March. Complete fractionating equipment for the removal of isobutane is installed in this plant.

The company is now constructing a plant near Crossville, Ill., which will manufacture natural gasoline and liquefied petroleum gases. Completion date for this plant cannot yet be determined.

Can you use the part-time services of a first-class sales force?

If you have a non-priority line to sell to department stores, furniture stores and appliance dealers—here is a real opportunity for you.

We have built up an intelligent, hard-hitting sales team of 32 men, strategically located over the country. These men have proved their sales ability by the increasingly large amount of repeat business they have been able to get. Each man is capable of training a force of floor salesmen.

They are welcomed by more than 5000 buyers who trust their judgment and respect our line. This active list of accounts is a valuable asset which has cost us a lot of time and money to build up.

Our company has had to adjust its production to meet the needs of our nation's defense program. Gas ranges are among the products which have been drastically curtailed by priorities. Of course, we shall continue to produce gas ranges to the limit of our quota allotment.

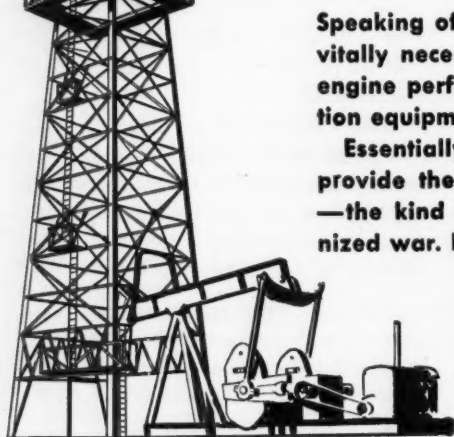
Naturally we want to keep this sales team occupied and busy—looking forward to more normal times. They deserve it on their fine record. To do this, we must have help from some other manufacturer who can profitably use a first-class, well-trained sales force. Needless to say, Caloric expects no over-rides or other compensation for their services to you. If you are interested in discussing possible arrangements, write directly to me.

Julius Klein
PARTNER

CALORIC GAS STOVE WORKS
PHILADELPHIA, PA.

Good Carburetion

—AN ESSENTIAL

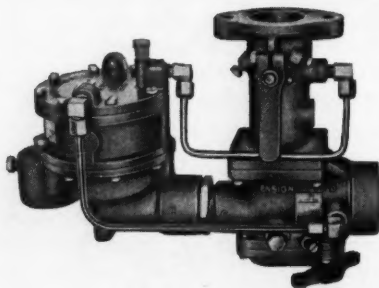


Speaking of essentials—good carburetion is vitally necessary for continuous dependable engine performance. Building good carburetion equipment is our business.

Essentially, internal combustion engines provide the most valuable source of power—the kind of power that will win a mechanized war. Drilling wells, pumping the crude, refining and transporting the finished product—high test gasoline utilized in a thousand defense needs.

Maximum engine performance depends upon the accurate control and proportioning of gas-air mixtures. This is the principal function of ENSIGN Fuel Regulators and Gas Carburetors.

Constant research and testing results in the development and application of new and improved principals—those features you enjoy in today's carburetion.



ENSIGN

CARBURETOR CO., LTD.

HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, ILL.

BUTANE *Power*

Butane Powers Trucks For Oklahoma Water Project

By O. D. HALL

LIQUEFIED petroleum gas is on the job 24 hours each day for national defense at Oklahoma City, Okla., in connection with construction of the \$6,911,000 Upper Bluff Creek waterworks project.

Several powerful earth-moving machines are utilizing this fuel on a night and day basis with highly satisfactory results. The municipality, acting as its own general contractor, is engaged in a race against time to complete, by the end of this year, 3½-miles-long dam, dig five miles of canal and excavate dirt for a huge storage reservoir to hold 75,000 acre-feet of water as a supplementary city supply. It is hoped to have the dam and auxiliary construction ready to hold back and store the 1943 flood waters in the North Canadian river which usually come with the Spring rains.

The Bluff Creek reservoir will supplement the supply of water now obtained by the city from Lake Overholser, on the North Canadian river. The canal will carry this water from the river by gravity flow into the new storage reservoir. Extensive additions and im-

provements also are being made to the water distribution and filtration systems of the city.

Since important U. S. Army projects have been located at Oklahoma City, including Will Rogers Field, Midwest Air Depot and a large airplane assembly plant, the city has become an important defense area. Added to this situa-

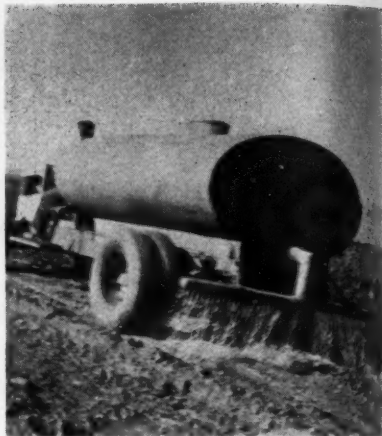


A 90-hp., butane-fueled grader patrol grading road at site of the dam.

tion the increased growth of the city demands immediate expansion of its waterworks system. Recognizing this the Federal Government has given the Bluff Creek Dam construction a high priority rating. Work is proceeding night and day under direction of H. E. Bailey, city manager, who also is an engineer.

Acting under authorization of the city council, Mr. Bailey leased a large amount of heavy earth-moving equipment from Cole, Carley and Hudkins, of Omaha, Neb., for excavation, dam building and other construction purposes.

About three months ago the American Butane Gas Co., of Oklahoma City, was given the contract to convert six Chevrolet water trucks, included in the foregoing equipment, from gasoline to butane gas operation. The company installed Algas multi-jet LP-Gas carburetors on these trucks. Last Summer it acquired the wholesale distribution and retail sales rights



A 1½-ton Chevrolet water truck sprinkling the proper amount of moisture on the soil for compacting purposes.

from the American Liquid Gas Co., of Los Angeles.

Referring to the conversion of the six trucks, J. L. Grigsby, president, said: "In addition to replacing the old gasoline carburetors with Algas equipment we made some changes in the mani-



American Butane Gas Co. 1000-gal. twin-tank butane delivery truck. Note 25-gal. butane fuel tank in front of rear wheel. This truck operates on an around-the-clock basis in delivering LP-Gas to Bluff Creek Dam earth-moving machines.

Dirt moved to top of the dam is being compacted by this butane-powered tractor pulling two sheepfoot rollers.



folds and installed 25-gal., LP-Gas tanks on the side of each truck. While this converted equipment has not been operating long, we already have received gratifying reports on its performance under butane power. The multi-jet mixers of the carburetors have made starting easier and the butane fuel has materially reduced oil consumption, lessened time lost for repairs and increased operating efficiency."

Butane gas is used not only in the operation of the six water trucks but also as power for six Allis-Chalmers tractors and five Euclid wagons, used to move prodigious amounts of dirt at the construction site. Butane also is used to fuel a Ford truck which carries greasing and lighting equipment. This mobile unit can be moved from machine to machine as each needs lubrication, saving time and expense of driving the machines to the construction site garage for such service.

The American Butane Gas Co. has the contract for hauling 300,000 gals. of LP-Gas from the refinery

in Oklahoma City to the Bluff Creek dam construction site. For this work it uses one of its own LP-Gas 1000-gal., delivery trucks which is operated on a 24-hour basis. Two drivers, one working on a daytime schedule and the other driving at night, transport the LP-Gas, now being furnished in proportions of 70% butane and 30% propane, directly to the machines at the construction site. The truck is equipped with a Roney rotary percentage gage.

On the construction site are two butane storage skid-tanks. Each has a capacity of 1500 gals. (water measurement) and is equipped with a Bastian-Blessing slip-tube gage. These tanks are used for reserve supply storage. The American Butane Gas Co. drivers deliver the butane directly to the machines and if any fuel remains in the delivery truck tank it is transferred into the storage tanks at the construction site. This method also makes for more economical and efficient operation and insures against unnecessary delays for fueling.

FISHER

TYPE 721X

LOW COST

REGULATOR

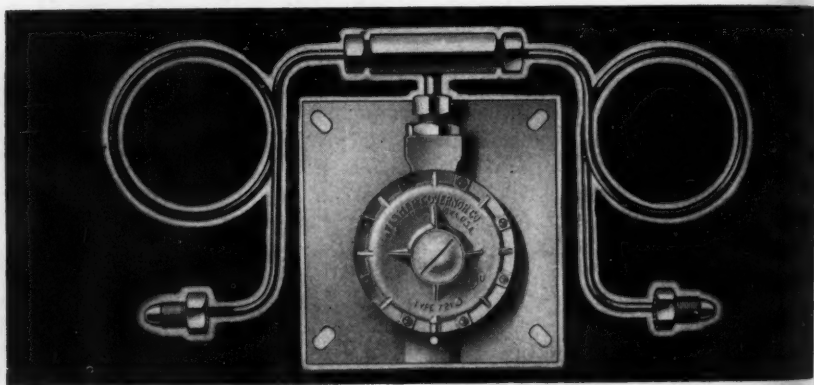
TWO DRUM

CONTROL

This assembly has found widespread acceptance and approval on two drum installations where superior regulation and control must be maintained . . . yet equipment cost kept to a minimum.

Regulator is the famous Fisher Type 721—with capacity adequate for all domestic and normal commercial loads. Built-in safety relief valve, set and sealed at 1 lb.

Check Valve Cross "T" manifold automatically closes off free side when empty cylinder is removed, preventing excessive loss of gas. (Not guaranteed to shut absolutely tight.) Easily renewable valve disc.



CAPACITY—120 cu. ft. per hour or more.

SETTING—11" Water Column at 10 cu. ft. per hour 100 lbs. inlet.

PIGTAILS—20" pigtails—30" pigtails furnished on order.

RELIEF VALVE—Built-in. Set and sealed for 1 lb. Screened bug-proof vent.

MOUNTING—Back plate furnished on special order at extra cost.

Write today for Fisher Bulletin of Liquefied Petroleum Gas Equipment—Bulletin 42D.

FISHER

GOVERNOR COMPANY
935 Fisher Building
MARSHALLTOWN, IOWA

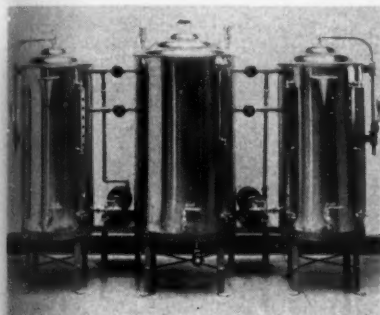
BUTANE-PROPANE New

PRODUCTS

Coffee Urn

S. Blickman, Inc., 2103 Gregory Ave.,
Weehawken, N. J.

Description: This three-piece battery coffee urn is made for use with liquefied petroleum gas and has a heating value of 3200 B.t.u.'s per cu. ft. The coffee capacity is 2 gals. for each urn and the water boiler capacity is 4 gals. Made of stainless steel, with die-drawn stainless steel covers and jar rings. It has a thermostatic heat control, with heat-re-



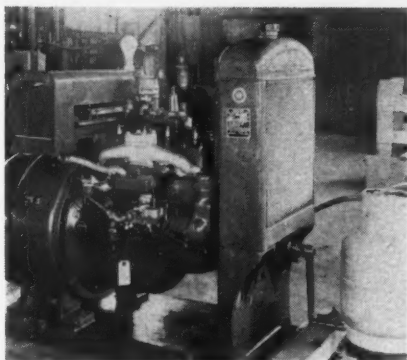
sisting glass liners. This three-piece battery is also made in the institutional type, with each battery consisting of two 40-gal. coffee urns and one 95-gal. water boiler.

Lighting Unit

Kohler Co., Kohler, Wis.

Model: 10-A-1.

Description: This 10 k.w., 120 volt, D.C., 4-cylinder engine has a 3 1/4 in. bore and 4 in. stroke and turns over at 1400 r.p.m. It is equipped with standard carburetor with Ensign regulator, heat exchanger, filter



and carburetor spud-in fittings necessary to convert it for use with butane gas. Also available with gas valve for artificial or natural gas operation. This unit is mounted on skid frame, with LP-Gas bottle, in test room of Ensign Carburetor Co., Los Angeles.

Gas Slide Rule

Utilities Distributors, Inc., P. O. Box
1937, Portland, Me.

Model: UDI Gas Slide Rule.

Description: The UDI Gas Slide Rule is a duplex rule with two movable slides. Equipped with an indicator, it comes in an attractive and durable leather case. Dimensions: 12 1/2 in. x 2 1/2 in. x 1/4 in. The rule is made of seasoned mahogany and covered with celluloid. Rule may be used to solve pressure drop in regulators, pipe lines, meters, control valves, etc.; orifice capacities in cubic feet of B.t.u.'s per hour at pressures from .01 in. to 300 lbs. per sq. in.; burner port capacities and burner design; correlation of

pounds, cubic feet and B.t.u.'s for LP-Gases; water heating costs, and multiplication and division as with the common slide rule. Problems in connection with any type of gas may be solved provided the specific gravity of the gas is known. A 48-page manual and instruction book is included with each slide rule which shows many problems completely worked out. Instruction on the use of the common slide rule, tables, formulas, and other data of use to gas men are given in the manual.



Portable Furnace

Mutual LP-Gas Equipment Co., 3811 W. Imperial Blvd., Inglewood, Calif.

Description: This equipment is designed for several jobs. The portable furnace base, shown with hose attached, is supporting a plumber's furnace, with shield. This same base may also be used to support a tinner's furnace, or adapted to a field furnace manifold, or used alone as a one burner unit. The valve located in center of base and the adapter inserted in outer rim are fully protected. Weight of base is

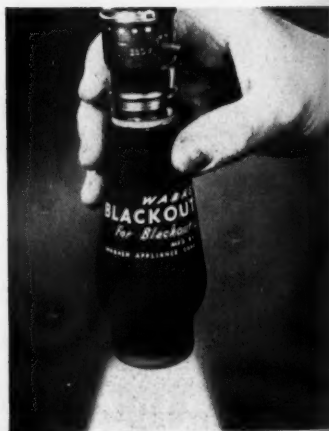
15 lbs.; height, 3½ in.; width, 8 in. The unit, with its various applications, is adaptable to all types of field and shop work. Both plumber's furnace and tinner's furnace may be used on No. 11 or No. 21 I.C.C. cylinders. Both the plumber's furnace and tinner's furnace can be attached to or removed from furnace base quickly and may be adapted to many types of work. The tinner's furnace places the heat directly under the heel of the iron.

Blackout Bulb

Wabash Appliance Corp., Brooklyn, N. Y.

Model: Silver-Lined Blackout Bulb.

Description: Designed for blackout lighting in air raids, this bulb provides downlighting in a soft beam of blue light that is safe for indoor visibility during blackouts. The bulb is lined inside with a pure silver reflector lining that hides all filament glare and projects the light downward. Light leaks are prevented by a black silicate coating that covers the bulb up to the extreme lighting end which is a deep blue. The bulb consumes 25 watts per hour.



BANKS TANKS DOMINATE

What We CAN Do in this Emergency

By W. W. BANKS



We all recognize the national emergency and appreciate the fact that National Defense production comes first before our personal business. We are all proud to be a part of an

industry that is ready, able and willing to shoulder its part of the burden.

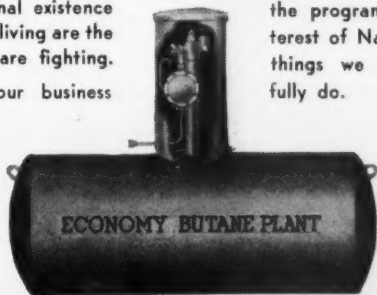
To say that National Defense comes first is just to tell part of the story . . . indeed, our very national existence and American way of living are the stakes for which we are fighting.

Your business and our business

must be subordinated and coordinated to play their own important part in the winning of the war. When the victory is won will be time enough to talk shop.

What can we do about it? Plenty! Every one of us should make sure that we know the latest government regulations affecting our business. Conserve! At all times conservation is good business practice . . . it is imperative now. We must eliminate the wasted materials and energy in the office, the shop, the delivery. We must cooperate closely with the government and our industry in carrying out the program set forth in the interest of National Defense. These things we can and will cheerfully do.

• Our Engineering department will be glad to assist our dealers with technical information.



• We are glad to assist our dealers with the latest available information on governmental regulations.

DALLAS TANK

AND

WELDING COMPANY, INC.

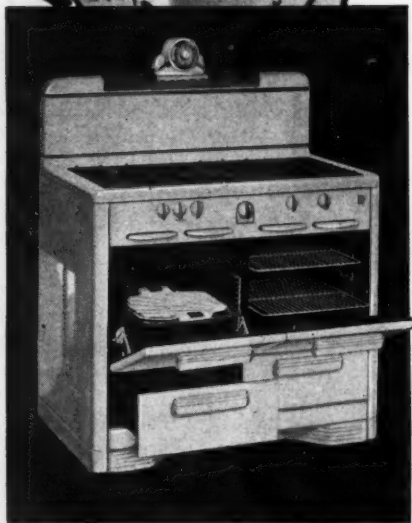
201-5 W. COMMERCE ST. DALLAS, TEXAS



ROPER

GAS RANGES

An Old Flame



ROPER has contributed much to our national welfare. Today Roper gas ranges continue, cooking wholesome, nourishing foods, to maintain national health and morale. This job is important.

We are giving every possible aid to our nation in the present emergency. Vital war materials

are being manufactured on an all-out schedule.



★
Buy Defense Bonds
★



GEO. D. ROPER CORPORATION

GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

ROPER GAS RANGES FOR ALL GASES INCLUDING (LP) LIQUEFIED PETROLEUM GAS

BUTANE-PROPANE News

RESEARCH

EACH MONTH a competent staff reviews more than 70 publications serving the oil, gas and affiliated industries in a search for those published articles of value to technicians and executives in the liquefied petroleum gas industry. In this department of *BUTANE-PROPANE News*, brief abstracts of such articles are presented.—Editor.

Comparison of Engine Fuels—E. N.

Ammer. *Industrial Power*, Dec., 1941, pp. 61, etc. Explains how to use charts for estimating cost to operate internal combustion engines on gasoline, diesel fuel, butane, and natural gas. Also, describes influence of compression ratio on fuel choice and engine performance.

X-Raying Welded Pressure Vessels

A. J. Moses. *Welding Engineer*, Dec., 1941, pp. 19-23. In this review of 10 years progress in the radiophotographing of welded pressure vessels there is described the advantages in time, sensitivity and penetration of million volt X-ray equipment when examining seams in welded vessels.

Mechanism of Flow of Fluids Through Orifices—J. T. Cortelyou.

Oil and Gas Journal, Dec. 11, 1941, pp. 58, etc. This article is a brief of the work done by Julius M. Naiman titled "Summary of Results of Data of an Investigation of the Mechanism of Flow of Fluids Through Orifices." It discusses the three basic laws and the four additional concepts which are presumed to be sufficient to solve the problems.

Methods of Light Hydrocarbon Analysis—J. J. Savelli, W. D. Sey-

fried, and B. M. Filbert. *Industrial and Engineering Chemistry. Anal.* Ed., Dec. 15, 1941, pp. 868, etc. Various methods for the analysis of mixtures of light hydrocarbons from

methane through isopentane have been studied and compared as to their accuracy and suitability for routine operations. The methods studied have included the automatically controlled Podbieniaik (Model L) column, the Ward method utilizing low-pressure fractional distillation and condensation, a dew-pressure method for n-butane-isobutane mixtures, the determination of olefins by absorption in various reagents and by catalytic hydrogenation and the determination of isobutane by absorption in various reagents and by its reaction with anhydrous hydrogen chloride. Synthetically prepared mixtures have been used for the fundamental investigations. Various methods of sampling and handling liquefied light hydrocarbon mixtures have been studied and compared.

Rubber, 100-Octane Fuel Need Large Volume of Base Stocks—W. L.

Nelson. *Oil and Gas Journal*, Jan. 22, 1942, pp. 10, 11. The Government's announcement of its plans to spend \$400,000,000 in the production of 400,000 tons annually of synthetic rubber with petroleum derivatives as a base material, has raised many questions as to how the program can best be carried out and what it means to all branches of the industry. Several phases of the problem are discussed in this article.

Role of Gasoline Plant and Refinery Operator in the Isolation of Hydro-

carbon Stocks for 100-Octane Aviation Fuel—W. L. Nelson. *Oil and Gas Journal*, Jan. 8, 1942, pp. 38, 39. This and related articles (December 25, 1941 and January 1, 1942, issues) may help clarify the general function of the industry in preparing adequate stocks of aviation fuel. It is not the purpose to explore technical details

but to acquaint the industry with the terms that are employed, the disposition of various base stocks, and the general processing operations that are involved. Numerous construction companies and technical experts have a detailed knowledge of the processing operations and these companies or men are available for actual construction and contract work.

Installation Requirements for Head Meters—H. S. Bean. *Heating, Piping and Air Conditioning*, Dec., 1914, pp. 744-746. The results of tests from four different sources on the effects that installation conditions may have upon the indications of head meters are reviewed and summarized in this article. The summarized results have been combined so as to give the lengths of straight pipe that should precede the differential producer of a head meter, for three different basic arrangements of piping. These lengths are given in the form of curves plotted as a function of the diameter ratio. It is pointed out that if the lengths given by these curves are used, the effects of installation conditions probably will not exceed one-half of one per cent, and may be less.

Additions to Gasoline Plant Diversity Output—Don Attaway. *Petroleum Engineer*, Dec., 1941. pp. 34, etc. Originally erected as a natural gasoline absorption plant, Arkansas Fuel Oil Co.'s gasoline plant now produces blended motor fuel, kerosene, Stoddard solvent, absorption oil, and fuel oil.

Valves—Their Selection and Application—F. E. Davenport. *Petroleum Engineer*, Dec., 1941, pp. 62, etc. A review of the essential differences between gate and globe valves designed to improve the service derived from this important class of piping control.

Automatic Level Controllers—M. F. Behar. *Instruments*, Nov., 1941, pp. 326, etc. A survey of devices and systems for automatically controlling levels of liquids and bulk materials.

Shell Isomerization Process for Producing Isobutane—L. J. Coulthurst. *National Petroleum News*, Dec. 24, 1941, pp. R-403, etc. This article is an introductory picture of the Shell Development Co.'s new catalytic butane isomerization process, now in commercial operation. It is designed to supply one of the essential raw materials, isobutane, for making 93-octane number blending agent for 100 O.N. gasoline. By the use of isobutane the refiner's output of blending agent for aviation gasoline can be approximately doubled over that available by use of only his butylenes. In the Shell process, the normal butane charge is passed in the vapor phase at low temperature and pressure over an aluminum chloride catalyst in the presence of anhydrous hydrochloric acid. The once-through yield of isobutane averages 42.5%, but the theoretical yield should approach 100%. While this article proposes the separation of the normal and isobutane products by alkylation of the latter and recycling the former, refiners or natural gasoline manufacturers having no alkylation unit might fractionate the two components, since their boiling points are 17°F. apart.

Gas-Engine Plant Powers an Oil Field. *Power*, Jan., 1942, pp. 60, 61. Following new trend, central station with three convertible engines supplies current for well pumps and for gasoline, water-pumping, and salt-water-disposal plants at Magnolia Petroleum Co.'s Fitts field operation.

Isomerization Boosts Isobutane Output. *Petroleum World*, Jan., 1942, pp. 37, etc. Refiners will find process applicable as means of converting normal butane to one of the constituents necessary in producing valuable alkylate. Briefly discusses features of the process, charge stock, yield and equipment.

Relationship of Various Processes for Production of Aviation Gasoline. *World Petroleum*, Jan., 1942, pp. 34, 35. A diagrammatic flow sheet illustrating processes related to production of aviation gasoline.

DOTTED LINE ROSCOE ... by Bob Crosby



"It's the boss—first time Roscoe ever had him where he wanted him"

American Stove Co. Publishes "Cooking for Health" Booklet

In an effort to cooperate with the National nutrition program currently being undertaken by the government to make sure that every citizen gets the proper vitamins and minerals needed for successfully doing his share in the country's defense, American Stove Co., manufacturer of Magic Chef gas ranges, has just announced the completion of a nutrition booklet entitled, "Cooking for Health."

Prepared by Batten, Barton, Durstine & Osborn, Inc., under the supervision of L. C. Ginn, sales promotion manager of the stove company, the book was designed as a handy guide for Mrs. Average American Housewife. It tells her in non-technical language how to make sure that the essential elements of nourishment pre-

sent in the food she buys actually reach the table.

According to Mr. Ginn the book will act as the spearhead of the Magic Chef 1942 spring campaign, which is based entirely on the "Cooking for Health" theme with "Vitamins for Victory" as the slogan.



F. F. Harkrader Now Associated With Palmetto Butane Gas Co.

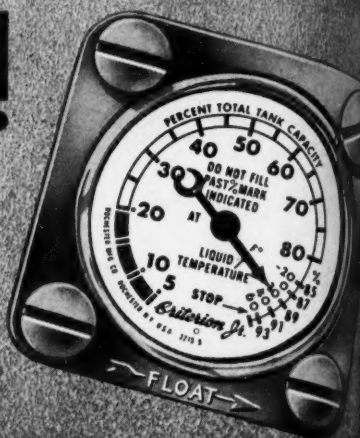
F. F. Harkrader, who in the past has been associated with the Carolina Butane Gas Co. in its Waterloo and Charleston, S. C., branches, has now joined the Palmetto Butane Gas Co., Inc., at Greenville, S. C.

The Palmetto Butane Gas Co. has specialized in the installation of butane systems in suburban and farm homes, schools, dairies, lodges, tourist camps and vacation cottages.

ON GUARD!



Day after day—year in and year out, Rochester Criterion Gauges are proving their dependability in thousands of L.P. Gas installations . . . silent sentinels which provide that extra margin of safety in the handling of liquefied petroleum products. Listed as Standard by Underwriters Laboratories.



Rochester Mfg. Co., Inc., 17 Rockwood St., Rochester, N.Y.

ROCHESTER *Criterion* **GAUGE**

Two Shell Co. Executives Recalled to Service

The executives of the Shell Oil Co., Inc., who were naval captains in World War I, have been recalled to the service of their country. Thomas R. Kurtz, manager of Shell's marketing operations department, has been assigned to the staff of Admiral Adolphus Andrews of the Third Naval District. In the last war Mr. Kurtz held the rank of captain and was Chief of Staff of Admiral Wilson, Commander of Naval Service in France. He was Commandant of the Naval Academy from 1921-24.

Charles E. Smith, former manager of Shell's Baltimore division, has been assigned to the Office of Chief of Naval Operations in Washington. In

the last war Capt. Smith had command of a destroyer flotilla and later was director of athletics at the Naval Academy. He retired from the Navy in 1930 and joined Shell as operations manager of the Boston division.

P. W. Engels, assistant operations manager, has been appointed to succeed Capt. Kurtz as manager of marketing operations.

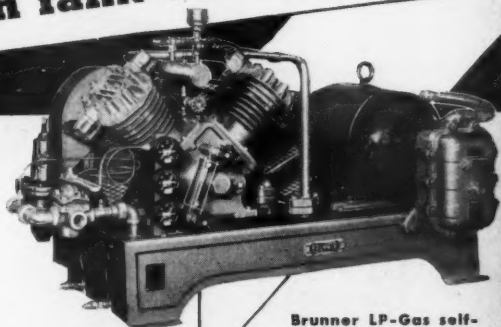
Rosedale Laboratory Buys Out Isaac and Howard Daniel, Inc.

Isaac and Howard Daniel, Inc., engaged in the LP-Gas appliance business in Rosedale, Ind., in the past, has been sold to the Rosedale Laboratory Co., of Rosedale, which will continue operations.

The Daniels were Philgas dealers.

A PERMANENT CURE . . . For LP-Gas losses in tank car unloading

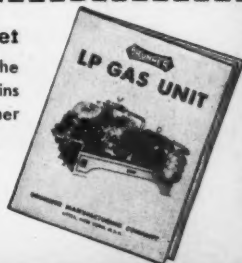
Americans on the home front have a big job to do. Besides getting out war supplies, they must help conserve vitally needed materials. Brunner LP-Gas units enable industrial users, bulk station plants and distributors to recover an additional 500 to 1000 lbs. of liquid petroleum gas per tank car unloaded. This saving in tank car vapors helps to build a huge reserve of this much needed LP-Gas. Let us tell you about the Brunner unit, today. Brunner Manufacturing Company, Utica, New York, U. S. A.



Brunner LP-Gas self-contained compressor unit. 4 cylinder, 5 h.p.

Write for FREE Booklet

The new booklet describes the Brunner LP-Gas Unit, contains illustrations, diagrams and other pertinent facts on handling liquid petroleum gas.



BRUNNER

OVER 30 YEARS THE SYMBOL OF QUALITY

VALVES *and* Accessories

for

Gas Burning Appliances



THE W. J. SCHOENBERGER CO.
CLEVELAND—OHIO

IN TEXAS IT'S

THE BUTANE COMPANY

for
WHOLESALE DELIVERIES
DIRECT TO YOUR BULK
STORAGE PLANT.

the
BUTANE

Company

• BROWNWOOD, TEXAS

WHOLESALE TRANSPORTERS—DISTRIBUTORS OF BUTANE

Airplane Calls Speed Up Sales

AN Oklahoma LP-Gas dealer and distributor who finds an airplane occasionally useful in his business and who can fly one, is C. Ralph Jones, joint owner with L. H. Hughes of the Oklahoma Automatic Gas Co., of Oklahoma City.



C. RALPH JONES

Holder of a commercial pilot's license and until recently owner of two airplanes, Mr. Jones also is a

member of the Oklahoma Civil Air Patrol and is taking training along with several hundred other pilots in the state to make himself useful in this national defense organization.

The reason that Mr. Jones does not now own two airplanes is that in late January, on return from a business trip to Washington, D. C., Chicago and Joliet, Ill., he "cracked up" near Bristol, Va. Shortly after leaving the Bristol airport and just after dark the engine of his Stinson, three-place airplane, which he was piloting, began to miss fire and then died altogether. Mr. Jones picked a plowed field as the only landing place available and set his plane down on it, but the machine turned turtle and caught fire. He escaped from the plane with in-



BLODGETT

EASY TO SELL

"THERE'S A BLODGETT
FOR EVERY BUDGET!"

In the flexible Blodgett line of roasting and baking ovens, there's a model to meet the needs—and the *pocketbook*—of every customer. Far-sighted L. P. G. dealers are backing Blodgett's 1942 sales efforts because they know that nothing keeps tanks busier than the satisfied users of these dependable commercial ovens.

- Just as Easy to Sell
- Just as Easy to Install
- Increases Volume
- Decreases Delivery Cost

The G. S. BLODGETT CO. Inc.
53 Maple St., Burlington, Vt.

For Greater STABILITY

IN DEHYDRATED BUTANE AND PROPANE

A Higher Quality Product A More Dependable Source of Supply A Product that will secure for you a list of customers more satisfied with a fuel giving trouble-free and efficient service try Carter Propane and Butane.

Write for complete information to: The Carter Oil Company, Marketing Department, Room 928, National Bank of Tulsa Building, Tulsa, Oklahoma.

DEHYDRATED
Propane and Butane

THE CARTER OIL COMPANY

TULSA, OKLAHOMA

Shipping Points: Seminole, Okla., Stonewall, Okla., St. Elmo, Ill.

WHOLESALE ONLY!

Superior FLARE FITTINGS

Especially For

L. P. G. INSTALLATIONS

SAE (Flare) Unions,
Couplings, Adapt-
ers, Elbows, Tees,
Crosses and Nuts

Listed as Standard by
**UNDERWRITERS
LABORATORIES,
INC.**



WRITE FOR BULLETIN

SUPERIOR VALVE & FITTINGS CO.
1309 WEST LIBERTY AVENUE
PITTSBURGH • PENNSYLVANIA

DEFEND HEALTH

WITH A

CONTINENTAL WATER HEATER

• • •

AMERICA NEEDS
PHYSICAL FITNESS

Good health depends on
cleanliness and cleanliness
depends on hot water.

A.G.A.
Approved



**SPARTAN
Automatic
Storage**

Continental
WATER HEATER CO. LTD

1801 Pasadena Ave., Los Angeles

juries no more serious than a few bruises.

The plane, which was a new one, was put entirely out of commission but Mr. Jones still has an older one, a Piper Cub, two-place, which he expects to use in air patrol duty and in his business when opportunity presents.

"Use of airplanes in the LP-Gas business within Oklahoma is very much limited because of the few landing fields available for commercial purposes at this time," said Mr. Jones, but added, "However, in a single day several weeks ago, I was able by use of my airplane to call on five dealers in Oklahoma and sell about \$3000 in merchandise. I also have found that my ability to fly an airplane has helped on occasional long trips in connection with the business of my company."

◆ ◆

Minneapolis-Honeywell Ads Feature Defense Housing

The 1942 advertising campaign of Minneapolis-Honeywell Regulator Co., manufacturer of controls, and its subsidiary, The Brown Instrument Co. of Philadelphia, manufacturer of recording and controlling instruments, will appear in seven consumer publications and over 60 trade and professional magazines. The theme this year will be directed to defense housing.

The policy inaugurated over two years ago for educating the public on the value of automatic heating will be continued by Minneapolis-Honeywell in its consumer advertising. The comfort and economy of automatic heating controls, even in low budget defense housing, will be emphasized.

ANCHOR



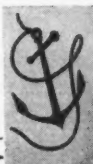
Serves America!

As the nation swings to Butane and Propane it is our pleasure to serve dealers in a greater part of the United States.

WHY Anchorgas is preferred

- *Fast, reliable service.*
- *Dependable supply at all times.*
- *Lower transportation costs due to our many well-located plants in Kansas, Oklahoma, Texas, and Louisiana.*

WRITE OR WIRE FOR QUOTATIONS



ANCHOR

PETROLEUM COMPANY
Atlas Life Bldg. Tulsa, Okla.



No. 41-F-8123-X (Illustrated)*

SPECIFICATIONS

Baking Oven	12 $\frac{3}{4}$ " x 16" x 19"
Broiler	7 $\frac{3}{4}$ " x 16" x 19"
Size of Cooking Top	9 $\frac{1}{4}$ " x 18 $\frac{3}{4}$ "
Height to Cooking Top	36"
Floor Space	36" x 26"
Shipping Weight, Approximately	240 Lbs.

Designed
FOR GRACIOUS LIVING
Tested
FOR CUSTOMER APPROVAL

Beautifully proportioned, smartly appointed, this Vesta Range was built to meet the modern need for efficiency and convenience in a compact, space saving, quick cooking range. "Time Tested," no essential help to good cooking has been omitted, no "gee gaw" has been added. That is why Vesta Ranges win the instant acceptance of new buyers—and hold the hearty approval of past buyers.

* By Government order, present ranges are not equipped with burner covers.

VESTA

LP-Gas Ranges

ATHENS STOVE WORKS, INC.

ATHENS, TENNESSEE

APRIL-1942

61

Tank Car Conversions Will Ease LP-Gas Transport Problems

THE Office of Petroleum Coordinator for National Defense announced at the end of the first week in March that tank car companies have begun to convert a number of ordinary railroad tank cars into cars capable of transporting essential liquefied petroleum gases used in making 100-octane gasoline and other war products.

A green light for the conversion program was given by the Interstate Commerce Commission, which approved the placing of the first experimental converted high-pressure car into service.

The first experimental converted car was approved by the Tank Car Committee of the Mechanical Division of the Association of American Railroads, which filed the petition with the Interstate Commerce Commission.

Three benefits to the war effort will result from the conversion program, Deputy Coordinator Ralph K. Davies said. These are:

1. An adequate supply of tank cars will become available to meet current and potential transportation needs for liquefied petroleum gases, such as isobutane.

2. Tank cars that were transferred to haul isobutane and other essential products can again be used exclusively to transport propane and other higher-pressure liquefied petroleum gases that are also necessary to war industries.

3. Both the time and steel required to build new high-pressure cars can be used for other important war work.

Only 30 days were required to convert the first experimental car from an ordinary tank car into one that will carry liquefied petroleum gases. Hereafter, even less time will probably be required.

"Practically all the material necessary for this work is now on hand," Mr. Davies said. "The few materials not in stock are being obtained."

Cooperating in the experimental work were the Interstate Commerce Commission, the Association of American Railroads, car-building companies, and tank car owners.

Fight Magnesium Fires With Coal Tar Says Bureau of Mines

A new method of extinguishing magnesium fires has been developed by the U. S. Bureau of Mines, according to recent report. It is the use of coal-tar pitch in granulated or flaked form.

When spread upon a burning magnesium incendiary bomb or any industrial magnesium fire, the material softens at about 300° F. and forms an airtight blanket which smothers the flame.

The details are described in a Bureau of Mines publication entitled, "Methods of Extinguishing Fires and Incendiary Bombs with Very Hard Coal-Tar Pitch." It is available without cost to those interested.

Warren Lp - Gas

To Our Customers, And The LP Gas Industry

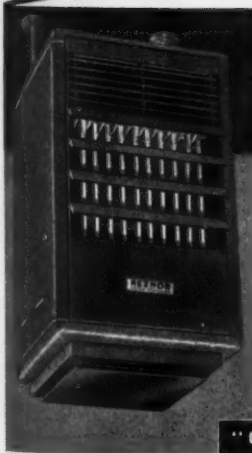
Warren is now serving the needs of our Victory Program, and we know you will agree that our efforts in this direction must come first.

We are also doing everything in our power to help our established customers through the emergency.

At the same time, we are giving every consideration to plans for the future when normal conditions again prevail.

WARREN PETROLEUM CORPORATION
Tulsa, Oklahoma

REZNOR GAS FIRED UNIT HEATERS



For "ALL OUT"
INDUSTRIES

SAVE days and sometimes weeks in installation time by installing Reznor Suspended Gas Unit Heaters. The units are available and ideal for alterations and construction of defense factories. Only a gas line and electricity are required. Compared with cast radiation systems they use 89% less vital materials. This alone means less delay. Send for catalog of Reznor's complete line NOW.

REZNOR MANUFACTURING COMPANY
304 JAMES STREET MERCER, PENNA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"



In the Emergency

Industry, army and navy have called upon Algas for assistance in solving their gas problems. The designing of special equipment and installation of gas plants for camps, cities, or as standby units have proved Algas ability. Let us solve your gas problems.

American Liquid Gas Corp.

1109 S. Santa Fe, Los Angeles, Calif.

*For Safety
and Economy*

ETHYL MERCAPTAN

—Purified—

The ACCEPTED
standard
odorant
for liquefied
petroleum
gases.

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS

NEW YORK



J. J. DELANEY



K. C. TOMLINSON

Reliance Regulator Corp. Selects New Officers

At a recent meeting of the board of directors of Reliance Regulator Corp. of Alhambra, Calif., K. C. Tomlinson was elected vice president.

J. J. Delaney was appointed manager of the company's operations, retaining also his present position as sales manager.

Both Mr. Tomlinson and Mr. Delaney are currently directors of Reliance Regulator Corp., which is a subsidiary of American Meter Co. Mr. Tomlinson will continue as manager of American Meter Co. for the Pacific Coast area, with headquarters in San Francisco.

These promotions were made to fill vacancies caused by the death of A. C. Thompson on Jan. 5.



Widow and Son Operate Town Plant After Death of Owner

Mrs. Nettie M. Wauge and her son, Merton W., are now operating the town plant of the Natural Gas Co. of La Grande at La Grande, Ore. Martin E. Wauge, the original owner, passed away last Nov. 17.

The La Grande plant started operations in 1931 and now serves a 560 B. t. u. butane-air mix to 365 meters. The hourly capacity is 12,800 cu. ft.

LEARN HOW TO REDUCE COSTS

for fuel and oil—how to keep motors free from
sludge and carbon—how to start motors instantly

BY USING

FAMOUS



Write for statements of users—creameries, municipalities, contractors, auto freight lines and others—who have proven the efficient, economical, trouble-free performance of these sturdy, dependable butane carburetors.

Send for 8-page booklet "POWER." Free on request.

ROADMASTER PRODUCTS COMPANY

2316 S. Flower, LOS ANGELES

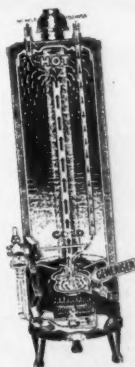
2236 S. Wabash, CHICAGO

For Water Heating . . . L.P.G.'s
TOUGHEST HOUSEHOLD JOB...

- BUILD LOAD AND
GOOD WILL WITH
"GENERALS"



Proven superiority for low hot flame
L.P. Gas... scores of exclusive features... 100% gas shutoff (burner and pilot). Be SPECIFIC—recommend GENERALS!



L.P.G. *eneral*

WATER HEATERS

SPECIFICALLY
MADE FOR
BOTTLED
GASES

General Water Heater Corp., 7 East Cypress Avenue, Burbank, Calif.
San Francisco • Detroit • Kansas City • Dallas • Houston • Memphis

HOTSTREAM "V" LINE



WATER HEATERS

- ★ Porcelain enameled
- ★ 15, 20, 30, 40, 60 gallon capacities
- ★ New fusion-weld process
No gaskets used
- ★ Approved A.G.A.,
Accepted F.H.A.,
U.S.H.A., P.B.A.,
War Department
- ★ Guaranteed 20 years

Deliveries at Once

THE HOTSTREAM HEATER COMPANY

8007 Grand Avenue • Cleveland, Ohio

McNAMAR *Tanks*

- TRUCK TANKS
- TRANSPORTS
- SKID TANKS
- STORAGE TANKS
- UNDERGROUND
SYSTEMS

All tanks ASME U-69, inspected by
Ocean Accident & Guarantee Corp., Ltd.

McNAMAR

BOILER AND TANK COMPANY

Tulsa, Oklahoma

Salem, Illinois

Chicken Mortality Lowered By Brooding With LP-Gas

A recent development in chicken farming is the use of LP-Gas to replace wood, coal and oil in the brooding of baby chicks. Favorable results have been reported in "hardening off" the baby chicks, which permits them to go out and scratch for themselves several weeks earlier than commonly done when raised by other methods. In certain instances, the mortality rate has been greatly reduced and the chicks have been better feathered and livelier.

Typical of the results being achieved is the experience of Stephen Karl, who operates a large chicken farm on the Boston Post Road seven miles north of New Haven, Conn., where 4500 chicks are brooded each season.

After 40 years of chick-raising with coal and oil, Mr. Karl started experimenting with LP-Gas last year. His farm is several miles from any gas mains, so he installed cylinders of "Pyrofax" LP-Gas. His entire first brood of 4500 chicks was completed with only two cylinders of gas, and the brooding required only four to six weeks instead of the six to eight weeks previously required when he used coal and oil.

Mr. Karl found that the use of gas materially increased the hardening process. In a brooder room heated by another type of fuel, the temperature of the entire room was high and the chicks did not have the opportunity to get out into a cool room to harden themselves. With gas-heated brooders, the chicks were able to move about from the warmth of the brooder, itself, to cooler parts of the room, thereby hardening themselves more quickly.

Other advantages reported in favor of LP-Gas included a greatly lessened fire hazard and an appreciable saving of labor.

NATIONAL
Thermo-Syphon
SYSTEM

and

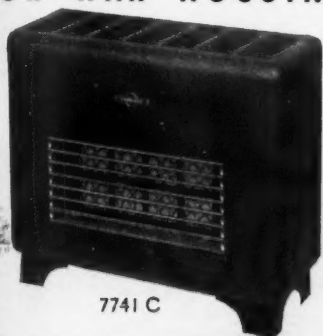
National Automatic Gas
SYSTEM

Patented Systems
Protected Territories

Write or Phone

National Butane Gas Co.
MEMPHIS, TENNESSEE

FOR WAR HOUSING



7741 C

Peerless Vented Circulators meet all war housing needs. Help save vital war materials. Only 1/3 as much material is needed in gas heating equipment as heating equipment of other types. 4 sizes range from 20,000 to 60,000 BTU input ratings. Low cost models without radiants are also available. Write today.

PEERLESS
MANUFACTURING CORPORATION
Incorporated
Louisville • Kentucky

RANGES YOU MIGHT HAVE HAD

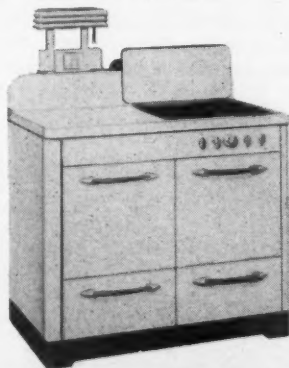


A new ship slides off the ways. The steel and other materials

that might have gone into gas ranges take their place in America's all-out Victory program.

As a result Cavalier L-P Gas Ranges will be limited in number in 1942. There will be no limit on their quality. We'll divide them as fairly as we can among our dealers.

Already a large part of Cavalier facilities are devoted to war goods manufacture. We expect to do more. But we are already looking forward to the day when you and we can again aggressively merchandise Cavalier Ranges in the L-P Gas field.



CAVALIER Cool-Kitchen RANGES



Cavalier
GAS RANGES

CAVALIER CORPORATION
345 W. First St.
Chattanooga, Tenn.

Anchor Petroleum Introduces New Tank Truck Equipment

The Anchor Petroleum Co. has inaugurated into its operations a plan for the purchase of large transport equipment needed for transporting butane between plants that it has under contract in various states, as well as between intra-state plants. The purpose of this service is to move butane from one plant to another as the material is needed.

The operation of these units will give the Anchor Petroleum Co. the flexibility that it feels is required to service its many accounts in the various states. These units will be used for the purpose of centralizing butane from various plants that now do not have rail facilities for loading tank cars to central points that will be provided with adequate tank car storage from which points tank cars will be loaded and shipped. This will increase the Anchor's tank car facilities. In addition, these units will be used for the purpose of transporting the Anchor's own butane to bulk storage plants to be strategically located at several locations already under consideration.

The new truck is a K. S. 7 International with net butane gallons of 3675; designed working pressure of tank is 125 lbs. The truck is fully equipped with butane carburetion equipment and latest design in air brakes. (See photo on this page).

Ransome Co. Opens Two More Butane Service Stations

The Ransome Co., of Emeryville, Calif., opened two new 24-hour truck service stations early in March. One is in Sacramento at 16th and McCormick Sts.; the second is located one mile south of San Luis Obispo on Highway 101.

Both stations feature Standard Oil products and will have complete facilities for truck service. The stations are equipped to dispense butane, gasoline and diesel fuels. Both have many features, such as beds and showers for truck drivers, that will help to make them favorite stops for the trucking trade.

The stations will be open seven days a week. Rudy Wagner, in charge of butane distribution for the Ransome Co., will be in charge of operations.



One of the new 3675-gal. butane tank trucks introduced into service by Anchor Petroleum.

Write or Wire us About Butane Equipment!

We have ready for delivery many types of Butane equipment—to those holding priority rating, or to certain persons permitted to buy without priority. Write or wire us today.

SOUTHERN GAS & EQUIPMENT CO.

ALL TYPES LPG EQUIPMENT
Little Rock, Arkansas,
and Birmingham, Alabama

BU-PRO-FIRE

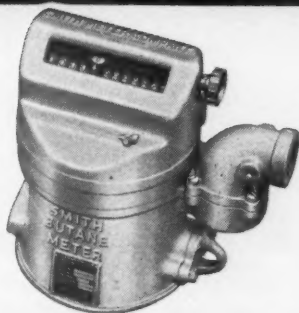
★
HEATERS AND
FLOOR FURNACES
FOR L. P. GASES
★



Bu-Pro-Fire Heaters and Floor Furnaces are designed and built especially for use with liquefied petroleum gases. Every Model is finished in "Lifetime" Porcelain Enamel and is guaranteed to give satisfactory Heating Service. A wide range of sizes provides a Model for every heating need. A. G. A. Approved. Write for illustrated catalog and prices.

TENNESSEE ENAMEL MFG. CO.
Nashville, Tennessee

SPECIALISTS for a Special Job...



SMITH Liquid Butane METERS

• It takes special meters to handle liquefied petroleum gases with the lasting accuracy that prevents shortages. Smith BU-40 Butane Meters are the "specialists" for that job.

These improved meters measure by positive displacement, using the Smith Rotary Principle that's famed for speed and enduring accuracy. Their capacity is 50 g.p.m.; working pressure, 250 lbs. They provide fast, steady flow and extremely low head loss, have built-in strainers, and are precision-built in two models: *Master* for corrosive gases; *Standard* for non-corrosive gases. Optional counter mechanisms: (1) horizontal re-set counter (illustrated), (2) 6" or 10" vertical dial, (3) horizontal set-stop counter with or without ticket printer.

Want complete details? Write for Bulletin 123

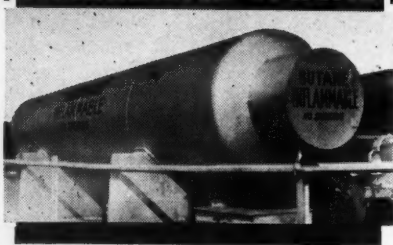
SMITH METER COMPANY

SUBSIDIARY OF A. O. SMITH CORPORATION
Factories at Los Angeles and Milwaukee

Sales Offices at
NEW YORK, CHICAGO, HOUSTON,
LOS ANGELES

LOCAL STOCKS AT CONVENIENT POINTS
LOCAL AGENTS IN ALL PRINCIPAL CITIES

American BUTANE AND PRESSURE TANKS



Safe, Efficient, Dependable Service stretched over years. Specify AMERICAN and get economical storage costs.

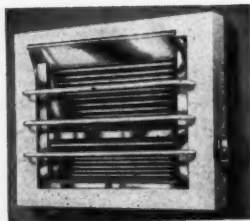
AMERICAN PIPE & STEEL CORP.

Manufacturers and Distributors

Alhambra • • • California

EXTEND THE HEATING SEASON

SELL
RAFIRE
WALL
Heaters



HUMPHREY RAFIRE No. 2

Used daily, even in mild weather, for bathrooms and chilly, hard-to-heat spots, the Humphrey Rafire Wall Heater No. 2 adds a payload of 7500 Btu per hour.

Sell this attractive, easy-to-install heater for handsome first profits, too. Send for full details.

GENERAL GAS LIGHT CO.
KALAMAZOO, MICHIGAN



Mr. and Mrs. F. H. Greenwood, Butane Gas Sales Co., Denton, Texas

Butane Gas Sales Co. Doubles Denton, Texas, Bulk Capacity

F. H. Greenwood, Butane Gas Sales Co., Denton, Texas, has recently replaced a 3000-gal. butane storage tank at his plant in Denton with a 6000-gal. one fabricated by Butane Equipment Co., Inc., of Dallas.

Mr. Greenwood started in business in January, 1937, when he says there were but two butane installations in Denton County. There are now approximately 800 installations in the county, of which he estimates he has made approximately 50%. This number does not include systems he has sold in other counties.

In addition to a large number of domestic installations the company serves several cotton gins, drilling rigs, hay balers, thrashing machines and tractors.

R. L. Hudson Buys Business of N. C. Clayton in Georgia

According to information received from R. L. Hudson, he has purchased the butane business of N. C. Clayton, operating in Bremen, Ga.

BUTANE PROPANE

for all
requirements—

A superior quality
assured. Delivery by
rail or truck transport.

**Clute Petroleum
Company**

National Bank of Tulsa Bldg.
Tulsa, Okla.

F & E

Announcement

Our policy is 100%
cooperation with Uncle Sam.

As long as our "fast and efficient"
burners and torches will aid our
country's total war effort we will
continue to be of service to our
many dealers throughout the en-
tire country.

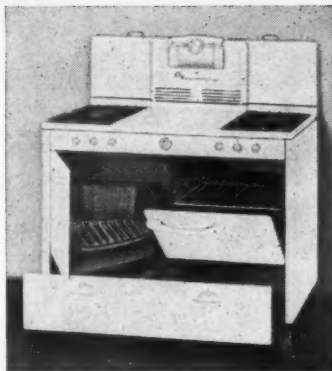
Write to

F & E Mfg. Co.

P. O. Box D Centerville, Calif.



HEALTH WILL WIN!



NEVER before have American
housewives been so aware
of the need of cooking for health.
Never before has healthful cook-
ing been so important.

And never before has it been so
easy and economical as it is with
modern Magic Chef Gas Ranges
... ranges developed by the
Magic Chef Research Laboratory
for maximum operating efficiency
with LP-GAS.

Magic Chef

THE GAS RANGE WITH THE
LIFETIME BURNER GUARANTEE
COPR. 1942 AMERICAN STOVE COMPANY

WRITE TODAY for information on the
complete Magic Chef line. Models to
fit every purse.

AMERICAN STOVE COMPANY

4301 Perkins Avenue
Cleveland, Ohio

Caloric Offers Services Of National Sales Force

An unprecedented use of advertising space for the purpose of maintaining the employment of its national sales force has been planned by Caloric Gas Stove Works, of Philadelphia. Copy has been prepared in which the company will offer the part-time services of its salesmen to manufacturers of products unaffected by priorities.

Caloric now has a force of thirty-two trained salesmen, located in strategic centers throughout the country. These men have developed sales contacts with more than 5000 buyers representing department stores, furniture stores, appliance dealers and other retail outlets.

The existence of this sales force is seriously threatened, because the production of gas ranges is drastically curtailed by priorities and the com-

pany has been forced to adjust its manufacture to meet this necessity. It is believed that this is the first instance of a major company using its normal advertising space in an effort to save the jobs of a number of its employees. Caloric expects no overrides or other compensation for the use of these men's talents and experience.

Julius Klein, Caloric partner, will personally direct any arrangements for the use of the company's salesmen which may follow the proposed advertising campaign.



Chapman Gas Service Is New Name for Old Firm

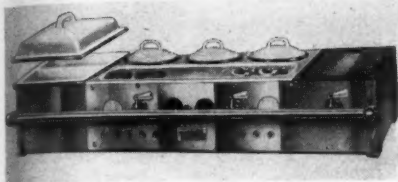
The Chapman Gas Service is now the name of the firm formerly operating under the title of Chapman Gas & Appliance Corp., of Oneida, N. Y., according to F. T. Chapman.

WHAT TO DO WHEN YOU CAN'T SELL HEATING EQUIPMENT

Here's help! Payne has definite suggestions to make which may help small gas furnace dealers to develop NEW sources of income—not related to heating equipment. The whole story is in the new issue of the "Payne Pilot." If you regularly receive this publication for Payne dealers, watch for this issue. If you aren't on the mailing list, write today and ask for a free copy. It may be the answer to your problem. Payne, continuing its leadership in the gas heating field, wishes to do everything possible to aid its dealers in the emergency.

PAYNEHEAT
Payne FURNACE & SUPPLY CO., INC.
BEVERLY HILLS • CALIFORNIA

MEXIHOT Barbecue Machine



Cash in on this new field! This equipment is one of the fastest sellers on the market today due to the fact it serves a new line of sandwiches with very little time and attention . . . will increase your gas load and gives you a new field on a line on which deliveries can be made. Models ranging from \$38.50 to \$79.50. Write for distributorship today.

DEPARTMENT B6

DICKERSON MANUFACTURING CO.
Springfield, Missouri

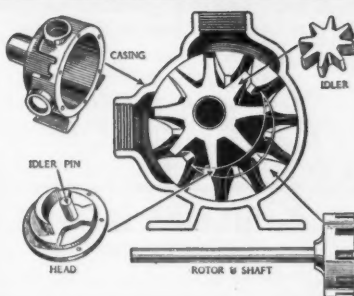
**Pacific Coast Distributors for
Bastian-Blessing L.P.G. Equip-
ment • Dayton Dowd Pump Co.
International Distributors for
Day & Night I.C.C. Cylinders
Manufacturers of
Vapor Differential Compress-
sors; Roney Valves & Fittings**

**LARGEST AND MOST EXPERIENCED
MANUFACTURING ENGINEERS AND
JOBBER OF L. P. G. EQUIPMENT**

**Whatever the Need
Whatever the Problem
"WRITE RONEY"**

L.C. RONEY INC.
1740 44th ST. • LOS ANGELES, CALIF.

It Pays To Remember The Original VIKING PRINCIPLE When Specifying ROTARY PUMPS



New men who have the important responsibility of specifying equipment find . . . just like the old-timers have . . . that it pays to place quality and dependability FIRST when buying rotary pumps. Vikings, with only 4 major parts and just 2 moving parts . . . the famous "Gear Within A Gear" principle . . . lead in their field. Your judgment will be proved right when you specify Viking Rotary Pumps. They deliver on every job. Bulletin 2302-41 shows you why. It's free. Write for it today.

**VIKING PUMP
COMPANY**
CEDAR FALLS, IOWA

"KEEP 'EM FRYING"

USE **PITCO**

Frialators

REG. U.S. PAT. OFFICE

SAVE FAT . . . GAS . . . SPACE

Deep-Fat Frying at Its Best

- ★ Customers can serve a wider variety of fried foods.
- ★ Left-overs or by-products quickly converted into daily specials.
- ★ Increase in customer business means increase in the gas load.
- ★ Actual saving in fat alone more than pays total cost of gas required to operate them.

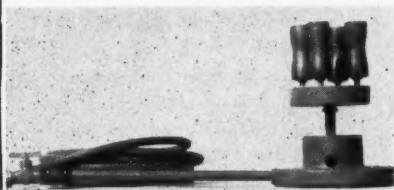
Send for 1942 Illustrated Catalog.

J. C. PITMAN & SONS,
INCORPORATED

711-719 Broad St.

Lynn, Mass.

COMBINATION UNIT for Field and Shop



No. 1-A FIELD UNIT shown here can be used with MUTUAL Plumbers and Tanners furnaces. The unit, as shown above with field manifold, can be used under field kettles for heating tar, compounds, etc. It's rugged in construction, portable, economical. Write for details.

Mutual LP-Gas Equipment Co.
3811 W. Imperial Hwy., Inglewood, Calif.

Richard G. Taylor Appointed To Position With Scaife Co.

Announcement is made of the appointment of Richard G. Taylor as assistant to A. V. Murray, secretary of the Scaife Co., Oakmont, Pa.



R. G. TAYLOR Mr. Taylor is from the La-Salle Steel Co., of Chicago, where he occupied a position of sales administrator. A graduate of the business administration department of Lehigh University, he has been employed in various sales and business capacities since graduation.

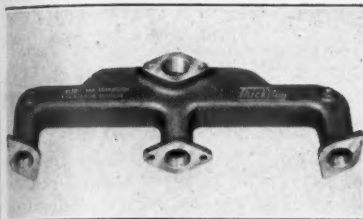
New Products Listed In General Controls Catalog

A new 48-page catalog of General Controls' complete line of regulators, control systems, and solenoid valves has just been issued. Several new products are introduced for the first time, including small commercial size motor operated valves, new 3-way magnetic lever valves, sensitive D.C. relays, and the new type PV Series electric magnetic valves for airplanes, machine tools, trucks, tractors, buses, and hydraulic systems.

Illustrated with many photographs, reproduced blueprints, and cross sectional drawings, this new catalog contains complete tabulated specifications and list prices on all items. It is a comprehensive reference for all engineers interested in pressure, temperature and flow controls for gas, air, oil, steam, etc.

For free copies of Catalog No. 51, write General Controls Co., 801 Allen Ave., Glendale, Calif.

Thickstun



Butane-Propane-Natural Gas

There is a correct Thickstun manifold for every engine. Investigate today—for 21% more power, 10% better mileage and "extra" performance.

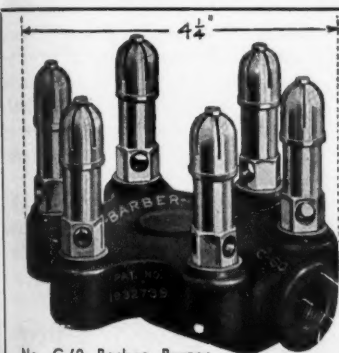
Immediate Delivery

Bu-Seal LP-Gas Fittings
Mileage Meters Fisher Regulators
Ransome Burners and Torches

ELECTRIC AND CARBURETOR ENGINEERING COMPANY

2323 E. 8th St.

Los Angeles



No. C-60 Barber Burner

BARBER APPLIANCE BURNERS

The burner is the heart of the appliance. Barber Burner Units are correctly designed, with the proper jets, to fit the individual appliance, and give complete combustion on Butane-Propane Gas. Appliance makers and fuel distributors assure better service and economy for their customers by recommending the use of Barber Burners. Submit your burner problems to us. Catalog of complete line on request.

THE BARBER GAS BURNER CO.

3704 Superior Ave. Cleveland, Ohio

We'll be happy to serve you when it's over!

When the country's best interests again permit expansion of liquefied petroleum gas marketing Philgas will, as before, offer outstanding advantages as a supplier of Propane and Butane

Present customers find that Philgas brings them the most complete production, shipping and service facilities in the industry, together with the assurance of quality products, produced to rigid specifications.

Philgas is proud to share the industry's contribution to serving the nation's needs in the war emergency, and pledges its full participation in the common effort.

Philgas
DIVISION

PHILLIPS PETROLEUM COMPANY

GENERAL MOTORS BUILDING
DETROIT, MICHIGAN

NEW YORK

MILWAUKEE

PHILADELPHIA

ST. LOUIS

CHICAGO

AMARILLO

BARTLESVILLE, OKLA.

THE NATION'S LARGEST MARKETER
OF LIQUEFIED PETROLEUM GASES



A. B. CAMERON



K. W. RUGH

Promotions Announced By Phillips Officials

The following announcement, under date of Feb. 2, issued by K. S. Adams, president and G. G. Oberfell, vice-president, Phillips Petroleum Co., brought promotions and increased responsibilities to three Philgas men:

"Because of the vital importance of synthetic rubber to our war effort and the enormously expanded program for the production of additional synthetic rubber and butadiene from which to make it, R. W. Thomas will devote his full time, effective immediately, to his work as president of our affiliated company, Hycar Chemical Co. He will, of course, act as consultant for the Special Products Department.

"A. B. Cameron becomes Acting Manager of Special Products Department with headquarters at Bartlesville.

"K. W. Rugh becomes Acting Manager of the Philgas Division of Spec-

ial Products Department, and will continue to be located at Detroit."

W. D. Cook was appointed Acting Manager, Retail Section, Philgas Division.



Standard Gas Equipment Sales Office Is Now at Baltimore

Standard Gas Equipment Corp., New York, has announced that its general sales and advertising offices are now located at Baltimore, Md. However, the New York regional sales offices and display rooms will be continued at the former New York address, 18 E. 41 St.

This move centralizes all executive offices at the Baltimore plant at Bayard and Hamburg streets, according to Herbert C. Erhard, general sales manager. R. E. Laffin will continue as head of the advertising department.



Anchor Petroleum, Butane Co. Expand LP-Gas Facilities

The Anchor Petroleum Co., of Tulsa, Okla., and The Butane Co., of Brownwood, Texas, recently purchased from Butane Equipment Co., Inc., of Dallas, Texas, two, 4000-gallon transports and seven 6000 net butane gallon bulk plants.

Anchor Petroleum Co. and The Butane Co. bought the services in line with their policy of expanding wholesale distribution facilities.



E. D. Bullard Co. Moves Offices In Los Angeles and Denver

E. D. Bullard, safety equipment manufacturers, announces its Los Angeles and Denver offices have moved to larger quarters in the same cities.

The Los Angeles office, managed by Alton A. Castle, is now located at 1213 South Olive St. In Denver, the office is located at 56 Wazee Market. Tom Hallinan is in charge.



W. D. COOK

Order These Famous L. P. Gas
Products From Us



BASTIAN-BLESSING Co.

THE DAYTON-DOWD CO.

Hackney

BUTANE-PROPANE CYLINDERS

L.C. RONEY INC.

**The IMPERIAL
BRASS MFG. CO.**

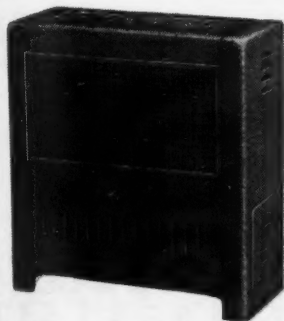
GAS EQUIPMENT CO., INC.

2620 South Ervay Street, Dallas, Texas

GAS EQUIPMENT SUPPLY CO.

1157 West Peachtree Street, Atlanta, Georgia

L-P CIRCULATORS



Write today for Catalog and prices of the
BRILLIANT FIRE line of High Efficiency
Gas Circulating Heaters.

**The OHIO FOUNDRY
& MANUFACTURING CO.**
Steubenville, Ohio

WHEN OTHER PUMPS FAIL

Replace them with

SMITH BUTANE-PROPANE PUMPS

Hundreds of satisfied customers have
had no service expense after installing
Smith Pumps.

*Accepted for either Butane
or Propane Service.*

Truck or Electric Drive Models
Available

Immediate Delivery on Priority.

SMITH PRECISION PRODUCTS CO.
1135 Mission St., South Pasadena, Calif.

SMITH
BUTANE-PROPANE
PUMPS

BUTANE and PROPANE TANK HEADS

A.S.M.E. type
for the manufacturers of
BUTANE & PROPANE TANKS

**** STANDARD RADIUS ****
***** 80% RADIUS *****
***** ELLIPSOIDAL *****

DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"

Write for Head Catalog

The COMMERCIAL SHEARING &
STAMPING COMPANY
YOUNGSTOWN, OHIO.

FOR *Sealing* THREADED JOINTS

ZERO-FLEX

JOINT COMPOUND



**NEVER
LEAKS!**

- ✓ NEVER DRIES NOR HARDENS
- ✓ A POSITIVE SEAL AT MINUS 55° TO 212° F.
- ✓ EASY WORKING AT ZERO
- ✓ NOT AFFECTED BY OIL OR GREASE, ALCOHOL, GLYCERIN OR BRINE

ORDER FROM **KEROTEST**

KEROTEST

Manufacturing Co.
Pittsburgh, Penna.

CLASSIFIED

Classified advertising is set in 6-point type, without border or display, at the rate of 10 cents per word per insertion; minimum charge per insertion \$2. Box numbers for replies count as 5 words. Count as a word each one letter word and each group of figures. Classified advertising is only accepted when payment accompanies order. Copy and payment must reach publisher's office prior to 10th of month preceding publication.

EQUIPMENT FOR SALE

6,000 GALLON BUTANE STORAGE TANK—A.S.M.E. Code, 80 pound; working pressure, complete with all fittings. Also smaller Butane Tanks. 150, 300 and 2100 gallon sizes. 600 gallon Vaporizer Tank. Address POWER CONSTRUCTION COMPANY, Minneapolis, Minnesota.

Jesse-James, Valley Butane, Join Union Service Stations

Clarence and Sammy's Service Station, Fresno, Calif., has had its name changed to the Jesse-James Service Station and Valley Butane Service, just south of the Fresno city limits, which is owned by John Agabashian, has been added to the Union Service Stations.

The Union Service Station list is now composed of the following: Jesse-James Service, Petrolane Service, Mammoth Service, Gray's Auto Service, Golden State Service, Valley Butane Service, and Depot Auto Park and Service.

HOT Water

UNITED STATES

Automatic Water Heaters

Approved by A.G.A. for
Liquefied Petroleum Gas

United States Heater Co.

COMPTON, CALIFORNIA

THOMAS TRUCK of Keokuk

DOUBLE-DUTY HAND TRUCK

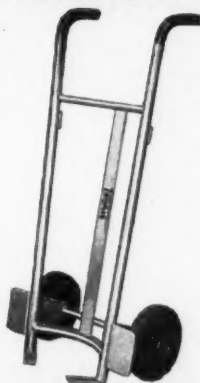
For Cylinders

Cradle constructed to handle cylinders up to 100 pounds capacity . . . Tapered body gives serviceman ample room between handles. All welded steel construction.

For Appliances

Wide Bottom flanges give perfect support for appliances. Web strap (optional) holds appliance rigidly to truck, permits one-man operation.

Write today for free descriptive literature.



No. 77 Hand Truck

THOMAS TRUCK and CASTER CO.

542 Mississippi River

Keokuk, Iowa

SPRAGUE METERS

for

PROPANE - BUTANE SERVICE

Write for Particulars

SPRAGUE METER COMPANY

Bridgeport, Conn.
Los Angeles, Calif.
San Francisco, Calif.

Are You in a Haze?

Many are when it comes to technical questions and new situations arising in the varied applications of liquefied petroleum gas, equipment and appliances. Maybe we can help you. If confronted by conditions you do not understand or problems that are beyond your experience, ask

Butane-Propane NEWS Research Department

for assistance. Our technical staff will gladly endeavor to answer all legitimate inquiries (except legal and financial) about the LP-Gas industry which regular subscribers choose to submit.

Use this sheet or your own letterhead.

Your Name

Your Position

Your Company

Your Address

Your Question

Mail to BUTANE-PROPANE News,
1709 W. 8th, Los Angeles, Calif.

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SCAIFE CYLINDERS *last longer*

because
they are
**STURDILY-
BUILT**

Precision work-
manship and mod-
ern production
methods are uti-
lized in the Scaife
ROLLED SHELL

method of cylinder construction. A steel
sheet of uniform thickness and known
strength is rolled into a cylinder by a
process that avoids internal strains and
maintains the original thickness of
material at every point.

Heads also are shaped by a method that
maintains uniform wall thickness, and
are inserted and integrally fused to the
shell by a fillet weld, providing zones of
extra strength at top and bottom, where
rigidity means longer life.

Moreover, before shipment, every
Scaife Cylinder is tested four times by
four separate crews to make absolutely
sure it is safe and dependable.

STURDILY-BUILT means LONGER LIFE!

*After forming, Scaife cylinder shells are thoroughly cleaned
in this pickling bath.*



*One of a battery of Form-
ing Machines which
smoothly roll flat steel
into shells having uni-
form wall thickness. This
prevents excessive inter-
nal strains in the metal.*

*The efficient, attractive
Scaife Ellipsoidal cylin-
der heads are shaped by
a method that maintains
the full strength of the
steel. (Below)*



SCAIFE COMPANY

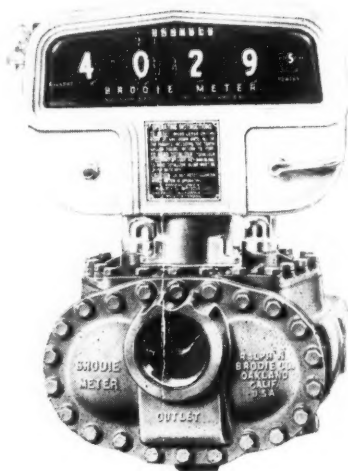
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YOUR 1ST AND LAST STEP

*In Eliminating Butane Errors
Begins and Ends with BRODIE METERS and*

BRODIMATIC COUNTERS



In handling butane, errors must first be detected before they can be corrected. But merely correcting an error does not prevent its recurrence unless its cause can also be determined and eliminated. So long as butane is measured by the human equation and not by meters, unknown errors will continue to become unaccounted-for losses. When you decide to take steps toward eliminating errors and losses, make Brodie Meters and Brodimatic Counters your first and final consideration. In the meantime, write for complete information.

Equipped with

Counters

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